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SOME PROBLEMS OF INFECTIVE HEPATITIS

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We might begin by asking ourselves what justification there is for regarding infective hepatitis as an infection at all, or for using this name in place of synonyms such as simple jaundice, catarrhal jaundice, or epidemic jaundice. Certainly none of Koch's postulates has been fulfilled, and the history of nutritional deficiencies such as ergotism and scurvy shows that epidemicity is no criterion of infection. There is, however, the well-authenticated fact that people often go down with infective hepatitis approximately a month after contact with a case—often quite a brief contact; and the transmission experiments of Voegt (1942) and Cameron (1943) are hard to explain except by some sort of virus. Nevertheless, although infective hepatitis seems to be an infection, it has not been possible to transmit it to any experimental animal in spite of numerous attempts and modifications. There are no characteristic histological lesions such as inclusion bodies, and tissue culture has given no assistance. We are unable to recognize the virus except by human transmission, and there is no laboratory test for the pre-icteric or subclinical forms of the disease. Compare the position with Weil's disease, in which there is a visible organism, an animal host, and a sensitive serological test, and in which, as a result, the frequency of non-icteric and subclinical infection has been revealed, and it will be seen under what a disadvantage we labour.

It is important to consider this question whether "catarrhal jaundice" occurring sporadically or epidemically is an infection, because jaundice sometimes occurs after the injection of human serum or plasma, or during the course of treatment of syphilis with organic compounds of arsenic. The symptoms, biochemical alterations, and morbid anatomy of this homologous serum jaundice and of post-arsenical jaundice are very similar to those of infective hepatitis. In all three illnesses there is an acute hepatitis and the microscopical picture of the liver is identical. (In parenthesis it may be added that jaundice proved to be due to catarrh of the duodenum or bile ducts is excessively rare.) Nevertheless, it is doubtful whether homologous serum jaundice and post-arsenical jaundice are infectious or contagious, or transmissible in any way except by deliberate inoculation.

The incubation period of infective hepatitis is approximately 30 days, while that of homologous serum jaundice and post-arsenical jaundice is usually 60 to 90 days. It is possible that homologous serum jaundice and post-arsenical jaundice are one and the same disease, small quantities of serum being passed from one patient to another in the syringes used for the injection of the arsenic. The incidence of post-arsenical jaundice can be greatly reduced by scrupulous precautions to prevent transfer of material from patient to patient (Salaman, 1944). It seems improbable that the virus of infective hepatitis is the factor which is transmitted in inoculation jaundice. A virus should not require a longer period of incubation with injection than with natural infection. Moreover, homologous serum jaundice does not protect the individual from contracting infective hepatitis; in fact, it appears to increase his susceptibility to this disease (Gordon, personal communication, 1944). Although second attacks of infective hepatitis do occur, they are uncommon enough to suggest that an attack of infective hepatitis itself is usually followed by the development of immunity. Finally, there is no evidence that patients with homologous serum jaundice or post-arsenical jaundice ever infect their neighbours. This is not for want of opportunity, because both diseases have occurred on an unprecedented scale during this war. On the other hand, homologous serum jaundice can be transmitted to further subjects by inoculation, both during the incubation period and for at least a week after the onset of the jaundice (Oliphant, Gilliam, and Larson, 1943). These observations suggest that infective hepatitis is a different disease from homologous serum jaundice or post-arsenical jaundice, but they are not conclusive.

Obviously infective hepatitis is not a disease one would choose to study if one was out for quick results. Unfortunately it has proved one of the three most important diseases in the Mediterranean theatre of operations, the others being malaria and venereal disease. Disturbing features of infective hepatitis are the relatively long stay in hospital, the absence of any method of prophylaxis, and the steady rise in incidence in the four successive autumns of the war. On occasion it has interfered with military operations, and it has disproportionately affected key personnel such as officers and air crews. Coming at a time of year when malaria and battle casualties are also likely to be frequent, it imposes a heavy strain on medical facilities. The military authorities may well wonder what the incidence is likely to be next season, and public-health administrators are troubled by the risk of epidemics among the civilian population.

Clinical Features

Infective hepatitis is characterized by a pre-icteric and an icteric stage. During the epidemics abroad a surprisingly high proportion of the patients have been admitted to hospital during the pre-icteric stage. The symptoms in this stage are quite unlike the picture of "catarrhal jaundice" which many of us had formed. The onset of the illness may be sudden, with high fever. Respiratory catarrh occurs in a small proportion of cases, though it is not certain whether this is part of the symptomatology of infective hepatitis or is due to a coexistent respiratory disorder. In other cases adenopathy is a feature, and the blood picture in the early stage may resemble that of glandular fever. More commonly, anorexia and alimentary symptoms are in the foreground. The dissimilarity between our mental image of infective hepatitis and its real appearance may have two effects: it may cause the observer abroad to

wonder whether the disease he is seeing is the same as occurs at home; or he may be tempted to try to classify infective hepatitis into different types. I shall not anticipate unpublished work further than to say that there is little doubt that it is all one and the same disease.

A major difficulty in the pre-icteric stage is the differentiation from clinical malaria—that is to say, an attack of malaria in which the parasites are found only with difficulty and after a prolonged search. There is sometimes a lull between the pre-icteric and icteric stages of infective hepatitis, and the patient is then apt to be discharged from hospital with the diagnosis of clinical malaria, only to return a few days later with jaundice. In general, anorexia suggests infective hepatitis and splenomegaly suggests malaria, but it is impossible to make the differentiation with certainty at the bedside, and a simple laboratory test for infective hepatitis would be an immense help. A further difficulty lies in the fact that a patient may suffer simultaneously from malaria and infective hepatitis, as is only to be expected from their frequency and their occurrence at the same time of year. Finally, jaundice may occur as a complication of malaria itself when the blood or the liver is damaged by the plasmodium. For all these reasons it is wise to play for safety and to treat the patient for malaria when the diagnosis is in doubt. The importance of early treatment of malaria is great. Many pre-icteric cases of infective hepatitis have been treated with quinine and mepacrine and have taken no harm thereby. Pamaquin, however, is probably undesirable if there is any suspicion of disease of the liver.

Little need be said about the icteric stage, for when jaundice appears both patient and doctor are usually out of the wood. It is of interest to mention that arthritis, skin rashes, urticaria, and conjunctivitis have all been noted in infective hepatitis, and we therefore cannot regard these symptoms as peculiar to homologous serum jaundice, though they are probably more common in that condition. An uncommon but even more interesting symptom is neuritis, either localized or generalized. It must be remembered that both mononeuritis and polyneuritis are not infrequent in the Mediterranean theatre of war, and that there are few illnesses, medical or surgical, with which infective hepatitis has not at times been associated. We may therefore merely be dealing with the coexistence of two diseases. Nevertheless, similar nervous complications have been seen in this country, and we cannot avoid the suspicion that the virus of infective hepatitis may at times attack the nervous system.

Recurrences of jaundice are not infrequent, appearing in about 2% of cases. In most cases the relapse occurs within four weeks; of 21 relapsing cases, 2 relapsed a second time. The average stay in hospital in British troops is about 15 days, with another four weeks at a convalescent home. Only a very small percentage of cases have been ill enough to evacuate to the United Kingdom. The mortality among cases admitted to hospital is less than 1 per 1,000, and it is probable that a number of subclinical cases never reach hospital.

Duration and Treatment

There is no specific treatment of infective hepatitis. There is good reason to believe that recovery is accelerated by rest in bed and retarded by premature activity, and there is a strong conviction that patients take little harm from the amount of fat in the wartime diet, if they eat according to appetite. It may not be possible to provide special diets in the field, and the strict prescription of a fat-free diet may mean actual undernourishment of the patient.

It will probably be extremely difficult to prove the value of any special treatment, as the death rate is so low and the length of illness so variable. In a series of cases admitted to a military general hospital the urine was free from bile within seven days after admission in 15%, within ten days in 55%, and within fifteen days in 75%. The coefficient of variation is therefore high even when an objective criterion of this kind is used. It is probably even higher when merely the duration of stay in hospital is measured. Stocks (1944) has analysed the records of 808 patients admitted from the Services to E.M.S. hospitals on account of jaundice. Although the commonest length of stay in hospital (including convalescent home or depot) was 14 days, the range of variation was very wide. A rough calculation from his figures shows that the mean duration of illness was 40 days, with a standard deviation of 27 days.

To obtain convincing results from therapeutic trials it is necessary to treat a series of alternate cases and controls and to submit the figures to statistical analysis. A calculation* based on Stocks's figures indicates that a treatment which shortened the mean duration of the illness from 40 to 30 days would require a series of 117 cases for the results to be barely significant and 263 cases for them to be highly significant. If, however, the treatment shortened the illness by one-half—i.e., from 40 to 20 days—the corresponding number of cases would be only 29 and 66. Carefully controlled studies of this kind are rarely possible under conditions of warfare, when staff is short and patients are liable to be transferred at short notice. On the other hand, it is hard to get enough cases to carry out preliminary trials of this order at home.

At present we do not know what is the amount of time lost from this illness in our Forces. It is possible that it may be unduly high among troops in an operational area, who may be transferred from one hospital to another owing to pressure on beds and may eventually land up far from their own unit. It should not be difficult to discover the facts by an appropriate statistical study, and, if the time lost proved to be excessive, consideration might be given to the formation of special units for the treatment of jaundice close behind the line, such as have been formed for the treatment of venereal disease. Such units would also enable us to get more accurate information than we have at present about the effect of treatment and rehabilitation on the length of stay in hospital and convalescent home and on the rate of relapse. There is evidence that the enemy keeps men with jaundice in the line as long as they are not completely incapacitated.

Predisposing Factors

There must be reasons why jaundice is more common in war than in peace and why epidemics occur in the autumn. These, however, can only be predisposing factors, for there have been many epidemics of jaundice in peacetime and at all seasons of the year. The agents commonly invoked are cold, strain, dietary changes, and intestinal infection. So far as cold is concerned, "chill on the liver" is a familiar if vague synonym for infective hepatitis, and I have commented on the coexistence of respiratory catarrh in some cases of infective hepatitis. There is a high incidence of jaundice in British air crews, who may be exposed to the cold of high altitudes, and in British officers, who, unlike the men, undress at night and sleep in pyjamas. Nevertheless the last epidemic began in the hot weather and declined sharply after the first frosts of December. Neither American officers nor American flying personnel show an incidence above the normal, and in our own Air Force steps had been taken to prevent chilling when air crews had to fly at unaccustomed heights over Europe. Men of one armoured division, which had a high incidence of jaundice, were sleeping on camp beds in comfortable barns. Strain also appears an unlikely factor, for this particular division had been resting for three months, and the disease has occurred quite commonly in the back areas during this last year. The high incidence in certain combat troops may be a matter of place rather than of strain.

There is no evidence of any dietary or drug predisposition. It has been suggested that officers, who have had a much higher incidence of jaundice than the ordinary ranks, eat less carbohydrate than the men, but it would be ludicrous to pretend that the officers are suffering from carbohydrate deprivation. Suggestions of a deficiency of vitamins appear equally unfounded. Prophylactic mepacrine was administered on a large scale during the summer and autumn of 1943. Mepacrine is a potentially toxic substance, and there was some difficulty in securing tolerance for the drug when it was first administered, but there is nothing to suggest that it had anything to do with the incidence of infective hepatitis. Large epidemics have occurred among troops who were not taking antimalarial drugs, as in Malta and the Western Desert, and there has been a high incidence among British air crews, who take quinine instead

* I am indebted to Major Arthur Jordan, R.A.M.C., for suggesting this calculation.

of mepacrine because it is believed to have less effect on altitude tolerance. There is no evidence that alcohol, arsenic, or sulphonamides play any part, and it is stated that there has been no corresponding seasonal variation in the incidence of post-arsenical jaundice. As for diarrhoea and dysentery, they have been unusually mild in the present war, and they are not more frequent than normal in the history of cases of infective hepatitis.

Epidemiology

In discussing the epidemiology of jaundice there are two pitfalls to avoid. It is dangerous, when studying statistics from a large body of men such as a division, to assume that the experience of all its members has been uniform. If the statistics are analysed it will be found that no such uniformity exists, owing to the diverse movements and contacts of the individuals, and the losses and replacements of personnel. A unit which has been in a theatre of war for a year may contain less than half its original members; the remainder may be new-comers to the area. It is equally dangerous to assume that the epidemic of 1943 was a kind of influence or process which began in the middle of August and ended in January. Such influences may indeed exist, and it is true that the collected figures for a whole area or army form a smooth curve which extends over such a period. But when we break down the statistics into their component parts we find that the major epidemic is really the sum of a number of minor epidemics, which were by no means contemporaneous. In the present stage of knowledge it would seem wise to base our opinions first on accurate study of these individual small epidemics.

Unpublished studies of this kind have now been made by a number of observers (Kirk, 1943; Spooner, 1943; Mallory, 1943). When a single unit is studied, such as a squadron of an air force or a body of troops living and working together, the pattern of the epidemic is not very different from outbreaks of jaundice in schools and similar communities at home: a herald case, then perhaps another at an interval of 1 to 3 weeks, usually 10 to 13 days; a similar interval, and then the epidemic, which rarely may be almost explosive in its intensity. The great bulk of the cases may occur within 14 days of each other, though usually they are spread over a longer period. I am not going to pretend that observers have agreed in their interpretation of these phenomena. The argument is whether they can be explained by the orthodox hypothesis of droplet infection or whether we must invoke some other mode of spread. To my mind the orthodox hypothesis is quite adequate. But my point at the moment is that this kind of analysis of concrete situations is the proper method of approach, and we should exercise great caution in drawing conclusions from crude data such as the general incidence of jaundice, flies, temperatures, etc.

Infective hepatitis may be localized in place as well as in time. The localization may sometimes be very precise, as in a series of cases occurring at approximately monthly intervals among people working in the operating theatre at a general hospital. Such an attenuated epidemic could very easily be explained by droplet infection, though it had also raised the possibility of infection via blood-contaminated hands. Commonly, however, localization is on a broader scale. In 1942 the Eighth Army bore the brunt of the attack of jaundice, and the incidence was heaviest in troops who had actually spent a week or more in the Alamein battle area. Though the incidence of the disease in Egypt rose considerably in Oct., 1943, it soon fell, and never reached the high levels of 1942 when the troops were in the Western Desert. The Americans believe that there has been less liability to jaundice in the Casablanca area than in Oran and Sicily.

There is no doubt, however, that the disease is endemic throughout the whole Mediterranean area. Cameron (1943) has already shown this for Palestine. Several better-class Egyptians with whom I talked spoke of their children having had jaundice. Dr. A. F. Zanaty told me that not only did he see the disease in private practice in Cairo but that there had been a small outbreak among Egyptians attending the King Fuad Hospital towards the end of 1943; the age of the patients was 15 to 30, and the disease began with slight fever and respiratory catarrh. Moreover, severe cirrhosis which is not due to bilharzia is not very uncommon in Egyptian children about 7 to 10 years old; some of this may be the sequel to infective hepatitis. In North Africa infective hepatitis is not infrequent in the French and Italian colonists. There is no information about its occurrence in the Arab–Berber population, but all that can be concluded from this is that there has probably been no major epidemic among them.

Although there is a local reservoir of infection, there have been some curious differences in the incidence of the disease in different elements of the Allied forces which have come to the Mediterranean area. The relative immunity of Indian and Maori troops has already been established. It has since been discovered that the relative incidence in white and coloured troops in the American forces is 10 to 1, though there is no difference in work or feeding habits. A contrast is provided by native Belgian Colonial troops brought to the M.E. Among these there were 216 cases of infective hepatitis, with 9 deaths. They are a primitive people who had previously mixed little with other races, and they have also suffered severely from mumps and chicken-pox. It is hard to imagine that a people could have an inborn susceptibility to three different infectious diseases, and these variations in racial susceptibility may well be acquired characteristics.

There is another variation in incidence which can hardly be explained by any inborn difference in susceptibility. This is the fact that officers in the British Army and flying personnel in the R.A.F. are four times as often affected as ordinary ranks and ground staff. The most popular explanation of this phenomenon is that it is due to a difference in feeding habits. The ordinary soldier lines up to receive his food in his individual mess tin, whereas officers and flying crews mess together and share crockery in common. It is therefore easier for infected crockery to circulate among officers and air-crews than among ordinary ranks.

A number of facts support this explanation. Officers and men were equally attacked last year in the New Zealand forces who were in the battle area, where officers may eat under the same conditions as the men. There is no difference in the incidence of infective hepatitis in officers, air-crews, enlisted men, and ground staff in the American forces. American officers more often eat with their men than do ours, using their own personal mess tin or can of food. Moreover, American dish-washing facilities have hitherto been better than ours, and officers' messes have followed the standard procedure, in which the utensils are dipped in water which is actually boiling, so that the risk of transferring infection by this route is minimized. In the British Army officers' cook-houses have not always been as strictly supervised as those of the men, and the level of hygiene has sometimes been inversely proportional to the rank of the mess.

Measures to improve the hygiene of washing-up should of course be encouraged. Too often the water is cold, greasy, and dirty, and the towels far from clean; soap is often in short supply, and however carefully the crockery is rinsed a film of grease remains on it. There is evidence that units who wash up with soapy water have less jaundice than those who do not, but I am not convinced that communal crockery is the essential cause of the high incidence of jaundice in British officers and air-crews. The Service man's knife, fork, spoon, and mug may well be contaminated during washing-up in the communal bucket, and the use of communal plates is very common, especially in more static units. Again, it is odd that warrant-officers and sergeants, who also have their own mess and communal crockery, do not have a high incidence like the officers. It is said, too, that officers are unduly prone even when they are living and eating in their own homes or billets, though I do not know of any figures to support this statement. Like so many dramatic events in epidemiology, the high officer incidence of hepatitis seems on analysis to be due not to a single decisive factor but to a concatenation of circumstances: not only to communal crockery but perhaps to a higher susceptibility of the officer class, a greater opportunity for contact with strangers, the relative youth of flying personnel, and other unrecognized factors. It is a pity that a clue which at first sight seemed so promising has led in the end to no definite conviction.

Even if we accept the hypothesis of infection by eating-utensils it should be noted that it does not imply an excremental spread of infection. Similar precautions have to be taken in sanatoria for tuberculosis to prevent the infection of crockery with tubercle bacilli in the sputum. This point is made because of a hypothesis that the disease may be spread by the excreta rather than by droplet infection. It is certainly surprising that in spite of the frequent admission of cases to hospital in the pre-icteric stage, which is often regarded as the most infectious period, several hospitals have had not a single case of cross-infection in the wards or of transmission to hospital staff. But this could be paralleled in pneumonia and cerebrospinal fever, which are certainly air-borne. The place localization and the seasonal incidence may be more suggestive of transmission by excreta, and it has been stated that on taking up position on a clean site there is no jaundice and on a dirty site there is jaundice, though little evidence is advanced for this statement.

It was noted this year in North Africa that jaundice declined sharply after the first December frosts. This is reminiscent of poliomyelitis, in the spread of which flies are now believed to take part. The curve of the fly population figures in North Africa and Egypt has peaks in May and October and a trough in August, when it is too hot for the flies to breed. The curve of the incidence of dysentery, which is largely a fly-borne disease, has the same bimodal outline. The jaundice curve, on the other hand, is monophasic, with a single peak about October and November. This has been used as an argument against transmission by flies, but it is only fair to the hypothesis of transmission by flies to point out that gonococcal ophthalmia in Egypt, which is almost certainly transmitted by flies, has the same monophasic autumnal incidence (Wilson, 1936). It is only in autumn that the temperature and humidity are high enough to allow the gonococcus to survive during transfer, and the same might be true of the virus of infective hepatitis. Finally, it has been noted that jaundice occurs at a time when culicine mosquitoes are prevalent. There is no conclusive evidence that insects or excreta spread infective hepatitis, but there is enough to make experimental work in this connexion desirable, and indeed rather urgent.

Discussion

Some people are of the opinion that we already have more facts about the epidemiology of infective hepatitis than we can digest and that little more can be learned from field studies until techniques are invented for the detection of the virus or the discovery of latent or subclinical infection. Certainly such techniques would constitute an enormous advance, but it is doubtful whether we do yet possess all the data which could be secured about infective hepatitis as it is now occurring on an epidemic scale. There is still need for intensive study of the incubation period and mode of spread at the actual time and place of the outbreak. Only the man on the spot knows what people are actually doing; whether, for example, men listed as flying personnel are actually flying and, if so, how often, how long, on what types of machine, whether on operations or not, and so on. Again, cases of jaundice in different ranks may actually be occurring in the same place. Other factors, such as movements, replacements, and contacts of troops, incidence of jaundice in the civil population, topographical distribution in units, cook-house hygiene, sanitary discipline, flies, and exposure to cold or to strain, must obviously be studied at the time if information about them is to be accurate. There is also still much to be learned from the analysis of data already collected. We ought to be able to answer the following questions, but I do not think we can.

1. To what extent and for how long is the individual protected against infective hepatitis by a previous attack of infective hepatitis, serum jaundice, or post-arsenical jaundice? Lieut.-Col. H. L. Wallace found that 4% of a series of patients with infective hepatitis gave a previous history of jaundice. I have already mentioned that an attack of serum jaundice seems to make people more susceptible to infective hepatitis.

2. To what extent is the herd protected by a previous epidemic of jaundice or by experience of a batch of icterogenic yellow fever vaccine?

3. To what extent is such protection, if any, influenced by replacements and additions to the herd?

4. Does the seasonal incidence vary in different places and countries, and, if so, can it be correlated with temperature, humidity, flies, etc.?

5. Is there a similar seasonal variation in the incidence of post-arsenical jaundice?

But although we may agree that epidemiological study of infective hepatitis in the field is still worth while, we can hardly begin to exercise rational measures of control until we can answer questions like the following: (*a*) What are the vehicles of infection—nasal secretions, urine, faeces, food, eating-utensils, fomites, etc.? (*b*) What is the normal route of infection? (*c*) Can flies, mosquitoes, or other insects transmit the disease? (*d*) How can the virus be inactivated, with special reference to camp hygiene? (*e*) How early in its course and how late is the disease infectious? (*f*) What are the factors which affect susceptibility to infective hepatitis?

These questions cannot be answered without experiment. Laboratory workers will doubtless continue to try to infect animals in the hope that eventually an animal or a strain of jaundice will be found that will take. At the present moment, however, no immediate line of advance seems open, except transmission to human volunteers. This is not an encouraging outlook; for knowledge rarely increases rapidly when a disease can only be studied by human experiment, as the history of leprosy, trachoma, and pernicious anaemia shows. In the case of homologous serum jaundice we might well quail at the risks of human experiment; for of the 109 recipients of K 60, the notorious batch of pooled measles convalescent serum, 41 sickened—37 with jaundice—and 8 died (Memorandum by Ministry of Health, 1943). Fortunately this seems to have been a most unusual serum, and where homologous serum jaundice has developed after yellow fever vaccine the mortality has been of the order of 1 per 1,000. We have no reason to believe that when infective jaundice is deliberately induced the mortality will be higher than that of the spontaneous infection; and that again is probably less than 1 per 1,000. Nor need we believe that the incubation period will be longer than the usual 30 days, though Cameron's experiments suggest that it might be. Nevertheless, the number of subjects who may be encouraged to volunteer for experiments on the human transmission of infective hepatitis is clearly limited, particularly in time of total war, and a similar limitation must be placed on the circumstances under which it may be permissible to propagate the infection in the community. I am sorry it is not possible to be more optimistic about the prospects of research on infective hepatitis, and I repeat that the prospect might change overnight if we discovered a suitable animal. But at present it is a hard problem. If it had been easy it would have been solved years ago.

Conclusion

Much of the information in this article is derived from confidential papers and reports, and from conversations during a recent brief visit to North Africa. It is not an official pronouncement, and I may well have made mistakes in reporting what I have heard and seen. In one matter, however, I think I shall not be contradicted. The volume and the quality of the work of physicians serving with the Forces over-seas are of a very high order, and they are perhaps not sufficiently appreciated by those of us who have remained to practise medicine at home. A military general hospital in the field may admit more than three times as many patients a year as a teaching hospital in Great Britain. This has been a physicians' war so far, and many more men in the Forces have been treated for sickness than for injury. In the first half of the war civilian surgeons in this country treated more casualties from enemy action than their opposite numbers in the Services. On the other hand, physicians at home have had no experience to compare with the epidemics of venereal disease, malaria, and jaundice, and the outbreaks of diphtheria and poliomyelitis, with which their colleagues in the Services have so brilliantly contended.

Summary

Infective hepatitis is one of the three most important diseases in the Mediterranean theatre of operations and one of the major medical problems of the war.

No specific measures for prophylaxis or treatment are known, but the mortality is fortunately low.

Orthodox opinion is that the virus is spread by droplet infection, but a considerable body of opinion favours spread by excreta and flies.

In the absence of a susceptible animal, progress in knowledge and control of the disease cannot be expected to be rapid, but useful information might be derived from carefully planned human transmission studies.

REFERENCES

Cameron, J. D. S. (1943). *Quart. J. Med.*, **12**, 139.
Gordon, J. E. (1944). Personal communication.
Kirk, R. (1943). Unpublished report.
Mallory, T. B. (1943). Unpublished report.
Memorandum by Medical Officers of the Ministry of Health (1943). *Lancet*, **1**, 83.
Oliphant, J. W., Gilliam, A. G., and Larson, C. L. (1943). *Publ. Hlth. Rep. Wash.*, **58**, 1233.
Salaman, M. H. (1944). *Proc. roy. Soc. Med.* (In the press.)
Spooner, E. T. C. (1943). Unpublished report.
Storks, P., (1944). *Bull. Min. of Health & E.P.H.L.S.*, **3**, 22.
Voegt, H. (1942). *Münch. med. Wschr.*, **89**, 76.
Wilson, R. P. (1936). Rep. Int. Ass. for Preven. Blindness and Int. Organizat. against Trachoma.

WITH THE EIGHTH ARMY IN THE FIELD*

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(Concluded from p. 714)

EVACUATION AND EVACUATION SURGERY

The post-operative transference of the patient to the base, with its strains, vicissitudes, and delays, is a factor which influences treatment to an extent requiring further consideration. Already some idea has been given of a few of the difficulties.

In these campaigns the surgeon often had only a very rough idea, occasionally he had none, of the nature of the further journey of his patient, in terms of time, distance, and conveyances. While he knew that patients would be scrutinized at every halting-point, he appreciated that the less they or their dressings required to be disturbed on the way the better.

Road, rail, air, and sea, all were used. Road evacuation undoubtedly does more harm to patients and their wounds than do the other forms. An ambulance speeding along the wide smooth roads of England gives an impression of comfort and rest that is misleading. The roads in the countries of these campaigns, apart from a few main highways in Italy, do not compare, and by the time an army—or rather two armies, the retreating and the pursuing—have passed over them with the juggernauts of modern war the best become pock-marked and irregularly crumbled at the edges. That is putting the matter at its best. In the desert tracks became furrowed, and, when the sand was soft, vehicles floundered like small craft in a choppy sea. In country cultivated but not populous, roads were narrow and unsurfaced. Wide vehicles forced one another into side ditches. As the cookery books say, add a little water.

If he lie inside recumbent on a stretcher it is an education for a surgeon to make an ambulance journey of some 50 miles over rough roads. Because of the swaying and jolting it is a nauseating affair, however careful the driver may be. What, then, of the less fortunate patients? There are some to whom a road journey of a mile or two, even less, would be fatal; to others the risk may be considerable; to none is it beneficial.

Appreciation of the value of general rest for injuries comes, I think, a little slow to a young surgeon. He is apt, in a plaster-of-Paris age, to calculate overmuch in terms of local rest. A limb well splinted is not necessarily a patient well rested. Lack of general rest naturally also leads to local results by the lowering of resistance to infection.

What happened to patients and their wounds on and after such road journeys as have been described, when undertaken a day or two after operation? Some examples may be given. In cases of compound fracture due to road accidents in civilian practice limbs are frequently put, after operation, in skin-tight plasters and the patient is retained in hospital. Splitting of the cast is often done as a routine for safety, and certainly is fairly often required. If similar patients in these campaigns were sent on a road journey of several days' duration, not only was it found that splitting of all such casings was essential, but that splitting was not enough and that a split padded plaster was required. Otherwise circulatory risks and disasters occurred. In abdominal cases the journey, if undertaken much before the tenth day, frequently produced an intractable ileus. Patients with chest wounds who were still showing some dyspnoea or cyanosis while at rest became acutely embarrassed. Shocked patients had their shock increased. Patients with early infection had their resistance undermined.

Thus the clinical needs clashed with the administrative necessities. Theoretically there could be a multitude of holding medical units close to the line. That is the ideal of the medical services. But wars are not to be fought with hospitals instead of artillery dumps, with ambulances instead of tanks, or with syringes instead of rifles. Compromise, then, was required. The serious cases had to be held. Half alive in the field is better than dead at the base. The proportion of casualties detained where they were operated upon varied between 3 and 5%. All else had to start down the chain. The chain itself had to be reasonably clear. Along it occurred what might be called evacuation surgery. This, in spite of the term "coffee-stalling," was a skilled business and had never to have a casual air about it. Vigilance and ability were required to pick out and retain and treat those whose condition had deteriorated on the way, to note any overtightness of plaster casings, to renew, when necessary, dressings and casings, to spot and treat secondary haemorrhages, and to be helpful in the many little but important ways that made for the patients' comfort on their further travels.

Air Evacuation

Air evacuation presents attractive possibilities and has often provided a magic carpet to transfer patients to a base expeditiously in a few hours, on a journey that would otherwise necessitate days, even weeks. Many thousands of sick and wounded in these campaigns were so transferred.

Omitting rare occasions when the plane brings wounded or injured men to the surgeon, and dealing only with post-operative transfers, it must be observed that air evacuation has limitations that are not apparent at first sight. To the popular imagination the idea of the seriously wounded being operated upon quickly, and immediately transferred to the base by air, is a fascinating one. But these seriously ill patients, operated upon well forward, would necessarily have to make a road journey to an aerodrome and another road journey at the other end. Enough has been said about road transport to explain why such journeys should be avoided. Occasionally in the desert a landing strip could be made alongside a casualty clearing station. In closer country that ideal will not be possible until planes can land with a shorter run. But there was another drawback—the uncertainty of the planes. Except for a few special ambulance planes in the desert, casualties were always removed in freight planes which brought up fighting stores and were fitted with stretcher racks for the return journey. There was, due to war exigencies, always some uncertainty as to what planes might be coming and whither they would be returning. While this was a difficulty that was got over in part by special sections of field ambulances sited on the aerodrome, the latter was no place to keep the serious casualties hanging around. The saying that no one is fit for the air who is not fit for the road became more than a saying, it became a rule.

The highest values of post-operative air evacuation were two. The first was to transfer certain patients who, though fit for road evacuation, were liable to special dangers if the journey were protracted. For example, a patient with a fractured femur might, without air evacuation, be some weeks in a Tobruk plaster. In this the limb is not so much "set" as made comfortable for transport. Any malposition might therefore be well organized before more adequate traction methods could be applied. A second example is that of a patient with a penetrating brain wound, where the routine daily treatment

* Based upon experience as forward consulting surgeon, M.E.F. and A.F.H.Q., in October–November, 1943, and January, 1943, to February, 1944.

and observation to avoid and detect the onset of meningitis or brain abscess are of prime importance. The second high value of air transfer was the less spectacular one—the removal of large numbers of both sick and wounded from the front areas. Such air removal lessened road congestion, it saved petrol, it avoided using up medical stores and food and the so many other things that had to be brought up, and it lessened the work for nurses and orderlies, who were now freed to give the retained patients more attention.

Air evacuation undoubtedly will prove in time a still more powerful aid. In these campaigns it had necessarily always something of an *ad hoc* air about it. But war calls for such arrangements. *Ad hoc* meant very often *ad astra.*

Rail and sea evacuation need little consideration. Their advantages over road transport are obvious. The retreating enemy never failed to blow up any railway bridge. There was always, therefore, a delay before the line was ready and a railhead established. Once that had been done, both administrator and surgeon were considerably relieved.

THE FIELD SURGEON

With the intermittency of the fighting the field surgeon's professional life alternated between idleness and activity, between boredom and gusto, between rest and exertion. The quiet periods, when of any duration, were far the most trying. Probably it is less irksome to have no patients than to have very few. Not always are there many casualties; not everyone can be in the forefront at the same time. Efforts were continuously being made to give all their share of each level of work. Those at the back, it should be noted, were always at the service of the local population, now returning pathetically after the tide of battle had passed. The mines which bestrewed their land found many victims. The attractive highly coloured little booby-traps, simulating fountain pens, shaving sticks, and the like, were eagerly picked up by children.

The surgeon had, of course, a regimental life as well. He and his team had to be adroit at quick setting up and taking down of their gear, at neat and economical lorry-loading, at tent-pitching and tent-striking, at finding the next site by a map reference without mistake or delay. The surgeon had his stocks to watch and maintain. He had to look after and train his orderlies. The labours of the latter do not finish with the operation, and it is fair to say that to them their work is more exacting than is the surgery to the surgeon.

It has been said, and often repeated, that war surgery is the worst possible training for the young surgeon. What, of course, is meant is that it is the worst possible training for civil surgery. The view is, I think, both unfair and thoughtless. It disparages, in its narrow outlook, a type of surgery devoted to the care and preservation of the flower of the nation's manhood, a manhood which has shown itself no less resolute than its forebears. Military surgery, from a broad viewpoint, ranks as high a form of surgery as any, and considerably higher than much of the "officiously keeping alive" of the aged or already doomed. In the early days of the war many young men sacrificed much, in career and prospects, to help their fellow men. Let it not be forgotten.

War wounds and field conditions certainly provide work of a rougher nature than is to be met with in times of peace. But field surgery has educational and other values that are not to be despised. There is development of clinical and operative judgment in many directions and of quick decision and self-reliance in times of crisis. There is, because of the frequent daily need for personal supervision, an invaluable education in post-operative treatment. There are resuscitation and transfusion, and all their details, to be performed on a huge scale. There is an appreciation of infections that would take long to acquire in civil life. There is the necessity for clear and concise note-making so that a patient's wounds and treatment can be readily appreciated on his further journeys.

The drawbacks are those of relatively coarse manipulations and of an association with a lower standard of asepsis that may dull the surgeon's sensibilities. In rush periods the stench of stale blood and the reek of primus stoves, the continued sight of blood- and mud-stained clothing and dressings and of his own streaked apron, the depression perhaps of the necessity for several amputations, all these may well at times make a weary surgeon wistfully recall other theatres he has known and doubt if it is surgery he is practising. But such periods fortunately are infrequent and do not last long. In the quieter intervals he can achieve an orderliness and a cleanliness of very high standard. Provided, therefore, that the young surgeon is not kept overlong in the field, the drawbacks may be discounted. It was the rule in these campaigns not to allow him to remain in the field longer than 12 months. Thereafter he returned to a base hospital, invariably against his will. But it was thought best for his own future that it should be so, and the change over allowed of a greater number being trained in forward work.

The necessary proper introduction of strangers to field surgery cannot, alas, always be provided. The exigencies of war do not always permit of it. That proper introduction, however, was achieved in the Italian campaign, when no newcomer to the field treated fresh casualties without having had an apprenticeship comprising periods at a base hospital in the fighting zone and at a staging post on the lines of communication. Without these experiences, with their wealth of demonstrations of the effects of travel upon the recently operated and their wounds, he was likely to make many initial mistakes.

What are as much wanted of a surgeon in the field as skill are character, physical fitness, and adaptability. There are required a zest and a capacity to go on doing a good job for many consecutive hours, perhaps for several consecutive days, to be up and about at all hours, to take the rough with the smooth, to think in terms not only of technique but of humanity, to perform the little kindnesses as well as the big operations.

Of the need for adaptability little may be said. The different tents and buildings, the need for modifications of apparatus far from an instrument shop, the improvisations necessary to meet this or that emergency, all these difficulties had to be surmounted by the surgeon's ingenuity, aided by the ever-helpful engineer workshops.

Of character and adaptability and skill it may be said there was abundance in the surgeons in these campaigns. What some lacked in experience was readily made good by character and application. Their work was marked by high endeavour and a sense of pride. Thomas Atkins ahead was doing a fine job; the surgeon behind would not suffer in comparison. The rigours of the field further expanded and developed native character and adaptability. Who shall gainsay that these are not unworthy attributes of a surgeon?

SOME TRENDS IN TREATMENT

Excellent articles have already been written by some of the field surgeons, general and special, and more will doubtless appear. Such are to be hoped for, as only by multiple presentations will a comprehensive picture be obtained. Some notable differences in practice and results will be observed in these papers. They should not be taken as necessarily implying different abilities or even always different opinions. Much depended upon the period in the campaigns, at what level the surgeon was working, the presence or absence of special teams, the pressure of casualties, and the distance from base hospitals. Individual statistics are thus apt to be misleading. Some of the best surgeons had long forward periods among the most unpromising material, and may be tempted to remain mute.

Accordingly much is to be hoped for from the continued insistence that routine field reports would furnish details of all deaths and of interesting cases, including all abdominal ones. (The records of specialized teams were more easily kept.) The number and name of the casualty had always to be included. The follow-up of these should provide wonderful statistical material after the war, in combination with the similar but more comprehensive record demanded of surgeons at base hospitals, entailing like notes on all abdominal, chest, joint, and vascular cases.

Here I propose to limit myself to brief consideration of some of the trends of treatment, and to a very few personal observations. In some branches, such as the neurosurgical and maxillo-facial specialties, changes have been more towards quicker

contiguity with the casualty than in technical procedures, permitting the latter to be more often ideally performed. Exploitation of the sulphonamide series and penicillin has, of course, in these specialties as in others, provided scope for comparison.

"We learn from history that we do not learn from history." Some lessons, it must be admitted, have had to be relearned. Every war and every campaign in every war provide differences from the last. It would be foolish to teach surgeons strictly on the lessons of these campaigns. But great principles are common to all; it is the details which change, and details in the field approach principles in importance.

While the transfusion service operated under the directorate of pathology, it is only right to precede any surgical considerations with a tribute to its magnificent organization and achievement, just as its aid to the patient precedes that of the surgeon. Resuscitation naturally plays a considerable part in field surgery. The transfusion element of this was developed in these campaigns to an extent never previously attempted or achieved. While at first sight it would seem likely that, to an army often so far from its base, plasma and serum would have been more forthcoming than blood, in the event there occurred the paradox of whole blood being employed in greater proportion to plasma or serum than some other authorities think advisable or necessary.

The difference is one that must be left to be thrashed out between transfusionists and between surgeons with wide experience of both methods. It is difficult for those brought up, so to speak, on whole blood, to argue. What the surgeons saw was good and they sought no change.

The early initial view that transfusion was perhaps a little overdone came to be modified. There was a fear that surgeons were perhaps delaying overlong, waiting for transfusion to bring about always the same high degree of improvement. With time, however, the transfusion officer was quickly ready to speak when he felt that further transfusion was unlikely to be beneficial. The transfusion officers developed a fine clinical instinct. All statistical comparisons between this and the last war will be misleading if the influence of the more highly developed transfusion services is not taken into account.

General Wound Treatment

It had been realized long before these campaigns that treatises on war surgery written just before or during the early part of this war had placed over-emphasis and displayed over-optimism on the possibilities of wound closure after excision. Much of the argument was based upon civil and last-war experience in France. Conditions in the latter were mostly static, the wounded were promptly received, and lines of communication were short. More important still, the patients were usually retained if so treated—a point hardly clearly enough pointed out. It is one thing to excise and suture a wound if the patient is retained under scrutiny; it is a very different matter so to do and send the patient immediately on a journey of several stages.

Immediate suture after excision had no place in these campaigns. (I except head and abdominal wounds and the rare favourable opportunity in an outlying unit which could retain patients until the stitches were due for removal.) The time lag, which averaged well over 12 hours, was too long and the necessity for early further transmission was too great. Occasionally a large flap wound was obviously the better to be tacked at a point or two; but that did not entail closure, and the fact that such stitches were in position was made prominent on the field medical card. Attempts at closure in earlier campaigns, and by new-comers later, met with disaster. What were unfortunately largely precluded by the long lines of evacuation were delayed primary and early secondary suture, procedures always to be borne in mind as time-saving where the retaining base is only a few days distant. The advanced base hospitals were always too strained to permit much of this. In the desert, because of the long time lag and because of the absence of severe infections, excision of wounds became modified in degree. More emphasis was required on decompression of the wound, the laying open and freeing of tension, rather than on the removal of much possibly soiled tissue. Damage in the deeper layers is usually much more extensive than to the surface. In Sicily, and especially in Italy, however, a more radical excision was required to guard against severe infections, particularly gas gangrene, which occurs largely in direct ratio to two factors—the time lag and the thoroughness of the initial treatment.

The practice of excision of skin dies hard. There seems to be a fascination in removing skin that is entirely unjustified pathologically if the wound is not to be sutured. Skin is very resistant to infection, and superficial cellulitis rarely develops in a wound which has been thoroughly opened up. Dead skin is rightly removed; all else is best retained for a possible late primary or secondary suture, when edges have to be pared anyhow.

There are over-tendencies in some quarters to minimize the value of *x* rays in forward areas and to frown upon anything more than a rapid look for foreign bodies. Certainly these procedures add to the burden in times of pressure. But repeated travel up and down the line convinced me that these are dangerous attitudes. Many of the most serious complications of infection, particularly secondary haemorrhage, can be traced to retained foreign bodies and the contaminated clothing around them.

Not myself a surgeon in the last war, I am content to believe competent observers who assert that the general appearance and condition of patients, in the immediate few weeks after wounding, contrast favourably nowadays as against 26 years ago. This they attribute in large measure to the oral sulphonamide therapy which is instituted at once and carried on as a routine throughout travel to the base. In these campaigns movements were at a pace which prevented reliable large-scale observations on the effects of administration of this type of drug by local and other routes. But the drugs were given. While it may be hoped, from a scientific viewpoint, that opportunities for such research will occur, who would not rather wish that all future campaigns will be as swift-moving? No new therapy, however, has altered in any degree the fundamental necessity for adequate initial surgery.

Burns

The proportion of burned to wounded was at one time as high as 1 to 10. It may not always be so high, but it will always be considerable in modern warfare. Tanning procedures in the field had, before these campaigns, proved to be unsatisfactory and dangerous. It was a pity, since painful and time-consuming dressings might have been dispensed with. But the difficulty of asepsis in the field and the strain of the subsequent journey combined to produce a lamentable infection under the tan. Sulphanilamide–vaselined-gauze dressings had taken their place, and still seem the best. Their messiness and their frequent need for reapplication call aloud for something better.

A personal impression has persisted that in the treatment of burns perhaps too much emphasis has been put on the danger of infection. Not that these are not great. But there has been a tendency to be over-impulsive in the early cleansing of severe burns. The patient is admitted, given plasma to restore his pressure to some 90–100 mm. Hg, and is then anaesthetized and cleansed. This cleansing proves almost always more lengthy than is anticipated, and its effects, combined with those of the anaesthetic, are not infrequently followed by a quick morbid result. While the plasma had done much, the patient was still not enough on the right side of life as to be easily pulled back. A policy of withholding anaesthesia, retaining the patient, and doing his extensive dressings in stages under morphine over a period of even three or four days seemed in these severe cases worth trying, and it was my impression that some striking recoveries were obtained.

Due care was taken of the other general considerations in burns, such as plasma administration and control. It may not be out of place here to record that "plasma for burns" has tended to become a slogan, inducing forgetfulness that whole blood may be needed at a later stage.

Immobilization

The supremacy of plaster-of-Paris casings over other forms of splintage was clearly demonstrated on the testing lines of

communication. There was, of course, no doubt of the issue, but the contrast could be well observed where for reasons of quick access and scrutiny a limb had been splinted otherwise for the journey. (Generally such quick access can be obtained with adaptations of plaster technique.) The necessity for both padding and splitting the cast has already been noted: limb casts for compound fractures between front and base are primarily for comfort; the position of the fracture, within reason, is a secondary matter.

The Tobruk plaster, evolved for the fractured-femur patient (spicas had been discarded) but suitable for other lower-limb injuries, underwent several changes. It started off as a modification of a method used in the last war, in which the bent Thomas splint, with the fixed extended leg within it, had two cuffs of plaster round both it and limb. The first "Tobruk" was an encirclement of the whole length of the splint-and-strapping-extended limb with plaster, adequate padding intervening between limb and casing. The next type incorporated a supporting posterior slab as well. A further development was first to apply a split padded plaster cast to the limb, including the foot, bringing out the extension tapes through holes in the casing, then applying the Thomas splint with cuffs of plaster round splint and cast at thigh and midleg level. There is probably little to choose between the types; all can be done well or badly. My own preference is for the first type, provided plenty of padding is inserted. There is certainly a difficulty with it of preventing some outward rotation of the limb below the fracture; control with the independent foot-piece is more difficult to achieve. But it can be done. A valuable feature of this type over the last described is that it takes half the time and consumes half the bandages. But it was also more favoured, as more comfortable, at the receiving end of the line.

If, as a refinement, the plaster bandages be applied very loosely round splint and well-padded limb, and fingers be kept running up and down the side bars of the Thomas splint, then the centre part of the cast forms a roughly circular tunnel for the limb.

While the "Tobruk" was a satisfactory method, none of the various types of immobilization for compound humeral lesions proved quite as efficient. Thoraco-brachial casings were applied with various little modifications. In general this patient was not as comfortable during transportation as was the fractured-femur patient. Were he fit enough to sit up on the journey then he rarely had any complaint.

The thoraco-brachial plaster is to be thought of for more than a fractured humerus. Shoulder-girdle conditions, such as a compound fracture of the clavicle, need similar support on a long journey.

Wounds of Joints

The practice of closure of joints after cleansing (omitting skin closure) where enough tissue is available has followed that of the last war. What was as important, and what was aimed at although not always practicable, was the retention of such patients in the field. They were of a type which generally could reach a casualty clearing station, and it was important they should, because their detention under the supervision of the surgeon who performed the excision was most desirable and was at this level more practicable. However adequate was the plaster immobilization it could never be as absolute in transit as in total rest. Nor was the surgeon at staging posts so informed as the original operator, however good the notes. But, naturally, where there was pressure from in front, these patients could not be regarded as being in the same class of urgency for detention as some others.

Amputations

The practice of saving all that was possible where amputation was required was well worked out before these campaigns. No elaboration is required here, since the merit is obvious. It is to be hoped that any suggested methods tried out at general hospitals, whereby primary or near primary closure at sites of election seem assured by small changes of technique, will be tried very cautiously in the field. The standard of asepsis and the rigours of the journey are likely, in this as in many other ways, to upset post-operative healing.

The approximation of flaps without tension by no more than three or four stitches tied over a thin roll of sulphanilamide–vaselined or dry gauze became general practice. Guillotine amputations were regarded with ill favour, but rapid disarticulation through the knee-joint, as a less shock-producing measure than thigh amputation, was resorted to on occasion with a probably increased chance of survival in critical cases.

The exception to conservation is the compound fracture of the tarsus. Experience showed that practically all of these required a foot amputation sooner or later. It was therefore better in my opinion to do this at once, save in the mildest cases. The immediate performance ruled out a long period of ill-health from osteomyelitis and eliminated the mental woes of patients over whom hung the inevitable loss.

Chests

There had been, before el Alamein, a distinct swing over from the radical practices in this specialty advocated in the last war. A much more conservative attitude had been established—perhaps ultra-conservative, since it suggested that, apart from cases in which pressure symptoms were present, aspiration of a haemothorax was better delayed until the patient reached the base, even if that took as long as seven days. With routine sulphonamide therapy the risk of infection was deemed likely to be less than if repeated aspiration were carried out in the field.

This policy was soon dropped. Most patients with a haemothorax reached a casualty clearing station for their surgical treatment, and it became one of the chief interests of its medical specialist to share in their after-treatment and to perform aspiration routinely, starting usually some 48 hours after the time of wounding. The practice of air replacement, which had also been advocated, was discarded as unnecessary from the viewpoint of possible recurrent haemorrhage and as somewhat likely, if infection were present, to favour a total empyema. Generally speaking, chest cases were fit to be evacuated to the chest centre before the onset of a degree of infection requiring drainage.

While, by and large, conservative measures were in the circumstances undoubtedly right, they may be carried too far by forward surgeons and insufficient débridement performed, particularly as regards clearing of broken rib spicules which may introduce infection. With an experienced chest team close behind him, and with often much more work on his hands, the field surgeon, unless he had special training and interest, was, however, probably erring on the safe side.

One real danger to be noted in these patients was the circulatory embarrassment resulting from overmuch transfusion. Transfusion officers were soon aware of this, and did not give more than was sufficient to raise the blood pressure to some 90–100 mm. Hg.

Abdominal Wounds

By the time of el Alamein standardization in traumatic abdominal surgery was taking shape. What remained was its more general adoption both in operative technique and in the equally important after-treatment. It was still to be realized by some that the time lag since wounding was not as important a factor as had been held out. Not only time but the nature of the lesion is to be considered. One man may have several large apertures in his bowel and be bleeding appreciably; another may have only a tiny perforation and have bled little. The idea that it was of no avail to operate after 12 hours was still rather prevalent. Patients with colonic tears have been successfully dealt with even after 48 hours. In the desert particularly, the large-bowel content was frequently solid and pollution of the peritoneal cavity relatively slow.

In one invasion where surgeons received casualties within an hour or two of wounding there was an impression that such patients had not done as well as previously when there had been a greater time lag. This is in keeping with last-war experience, that one can be too hasty in operative approach to the abdominally wounded.

Among the operative measures routine exteriorization of colonic wounds, whether intra- or retro-peritoneal, was probably the greatest change from last-war practice. The results of resections of bowel confirmed previous opinion of the hazards

of this sometimes necessary proceeding. The almost routine institution of continuous post-operative gastric suction undoubtedly time and again saved lives by averting the ileus which so commonly occurs whether bowel be injured or not. It matters little how many layers of stitches are inserted to close a bowel aperture if distension is allowed to occur; one layer of Lembert stitching suffices if the bowel wall be kept lax. The restoration of lost fluid by intravenous administration in sufficient quantity kept pace with the withdrawal.

There was early realization that abdominal patients have to be worked for and fought for, and that even in some of the most apparently unfavourable cases a good result can be got with such care. By the excellence of the transfusion services and by the greater exploitation of forward teams probably many more desperate cases reached an operating table than did in the last war. These two factors will invalidate any real statistical comparison. These desperate cases included not only patients with abdominal wounds but also those with both abdominal and other severe injuries such as compound fractures of the long bones. The combination is not uncommon, and is fraught with more than fourfold risks.

With the above practices thoroughly carried out, with routine four-hourly post-operative morphine, and with the retention of the patient for ten days where he was operated upon, it is likely that the end-results did not at least fall lower, despite the more desperate cases, than in past wars.

In order to make this paper comprehensive and yet bring it within the limits of an article I have had to omit much. Particularly do I regret omitting the names of individuals. To have mentioned some and not all would have been contrary to the spirit of the Eighth Army, in which brotherhood, kindliness, and helpfulness abounded.

Acknowledgments to my seniors I make with gratitude. To Major-General W. H. Ogilvie and Brigadier J. Weddell, the chief consulting surgeons of M.E.F. and A.F.H.Q. respectively, I owe much for opportunity, advice, and support.

Consulting surgeons cannot, however, exercise their full abilities without the sympathetic co-operation of their administrative heads. The successive D.Ds.M.S. of the Eighth Army during this period—Brigadiers J. Walker, C.B.E., *M.C.*, and E. Phillips, C.B.E., D.S.O., *M.C.*—were both out to be helpful in any and every way, and, in the much longer association with the latter, many of the principles of organization described above were worked out. In advanced base areas and on the west side of Italy there was the same fruitful liaison with another D.D.M.S., Brigadier R. W. Galloway, C.B.E., D.S.O.

A good general values his medical services. In his appreciation of their administrative needs and difficulties and in his ready sympathy for the wounded, as displayed by numerous visits to medical units in the field, General Montgomery showed himself no less lacking in humanity than in strategical genius.

SOME DANGERS OF SULPHONAMIDES IN EAR INFECTIONS

BY

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The use of the sulphonamide drugs in otitic infections is not without its dangers, and it appears to be insufficiently realized that their administration at the wrong time or in inadequate dosage may so mask symptoms, distort the clinical picture, or interfere with the acquisition of immunity that the patient's life may be jeopardized as a result. A distinguished otologist of conservative surgical outlook recently said that he was now opening more mastoids than in pre-sulphonamide days, and this he attributed solely to the increased incidence of these atypical and sulphonamide-distorted types. It is not going too far to state that some otologists are swinging round to the view that these drugs may be so dangerous as to be contraindicated in the treatment of otitic infections unless certain criteria are observed and followed. Too often has sulphonamide been used as a substitute for surgical drainage; too often has it been given in ignorance of the nature of the micro-organism present; too often has its use been applied at a stage of the infection when its administration could only mislead and confuse.

Acute suppurative otitis media usually begins with intense earache, fever, and deafness, and on examination the drum-head is bulging, pulsating, and usually of a purple colour. Such a picture calls for immediate myringotomy, and no amount of sulphonamide can ever take the place of this necessary step. After drainage is established and the micro-organism isolated, treatment with the most appropriate sulphonamide may be instituted, particularly if the fever persists, and its use may hurry on the resolution of the infection.

Again, after two or three weeks of otorrhoea have passed and subsidence of discharge or fever has not been achieved, the danger of continuing sulphonamides as a substitute for mastoid drainage is a very real one. At this stage of the infection the problem is likely to become one of early osteitis with decalcification of bony trabeculae, destruction of mucoperiosteal cell lining, and thrombosis of vessels in the mastoid cavity. Quite apart from the fact that sulphonamides will not reach the local area owing to inadequate blood supply in the breaking-down tissues, it is unwise, by introducing the masking effect of sulphonamide, to deprive oneself of the presence of signs and symptoms which would indicate the need for surgical drainage.

Three Illustrative Cases

The following three cases may help to illustrate some of the dangers which may be encountered:

Case 1.—A boy aged 10 had an attack of earache at his preparatory school; this was treated with sulphonamides, apparently got better, and the aural condition was subsequently disregarded. His general health remained unsatisfactory and he lost weight—signs which should have been given greater consideration. On arriving home for the holidays one month later the parents were alarmed at his appearance, and noticed that he complained of vague headaches. He suddenly became ill with signs of meningitis. A pneumococcus (Type 1) was isolated, and after four or five days an otologist was asked to see the boy in order to exclude possible "ear trouble," which, however, was not suspected by the medical attendant. The membrane was congested, but no other sign of abnormality was noted. It was felt certain that the mastoid was involved, and this was proved to be the case, both by *x*-ray and at the operation, which unfortunately was too late to save the boy's life.

Case 2.—A doctor aged 43 was taken ill with severe earache, fever, and some deafness; these indications should have suggested immediate myringotomy, but he dosed himself erratically with tablets of sulphapyridine instead. There was an improvement in the symptoms, and until the next bout of pain nothing much was thought of the matter; further tablets of sulphapyridine were sufficient to quiet the condition down so as to make it bearable, but on the fourth morning the pain became intense, and was accompanied by severe headache. The membrane was bulging, and the middle ear obviously contained pus. By this time the meninges were involved, and paralysis and loss of sensation in the contralateral face, arm, and leg manifested themselves. After a most stormy three weeks with turbid C.S.F. (Type 3 pneumococcus), periods of coma, and incontinence, recovery eventually took place after large doses of sulphonamide, Type 3 pneumococcus serum, and penicillin; but the recovery was, to say the least of it, unexpected. A subdural abscess over the greater part of the right hemisphere was found; this was rendered sterile and was absorbed as a result of penicillin treatment. In this case an early myringotomy would in all probability have cured the infection without complication.

Case 3.—A call was received to visit a boy aged 10 with a mastoiditis. On inquiry as to the length of history, the curious answer was received that the duration of the ear involvement was four days; this appeared to exclude the possibility of surgical mastoiditis altogether, and the diagnosis was assumed to be incorrect. On examination, however, the mastoid process was swollen and extremely tender to the touch; the ear-drum was oedematous and bulging, and the boy deaf. Realizing that such a condition could not possibly have come about in four days, inquiry was made as to any previous earache, and this resulted in the admission that five weeks earlier there had been an attack of earache on the same side, which was treated with a sulphonamide, had "cleared up," and had since been quite forgotten. It is obvious that a silent necrosis had been taking place in the mastoid process all this time, and that owing to the influence of the sulphonamide the drum had not perforated. The usual signs and symptoms were masked, and it was fortunate that the ultimate state of the ear was easily treated by surgical drainage, and that, unlike Case 1, an invasion of the meninges or the lateral sinus did not present itself as evidence that the ear was still involved. (Infection was with a haemolytic streptococcus.)

Some Points for Guidance

To summarize, it would seem pertinent to draw up a few points for guidance in treatment of otitic infections by sulphonamides.

1. Sulphonamides will never take the place of necessary surgical drainage, and should not be expected to do so.

2. Treatment of acute suppurative otitis media by a sulphonamide should be reserved for the period after incision of the membrane and bacteriological investigation. If the fever is maintained, the appropriate sulphonamide may be used in full dosage (day and night), but not after the end of the second week.

3. After two, three, or four weeks the condition of the ear, if still actively suppurating, is again becoming one that potentially requires surgical drainage, this time of the mastoid; and signs and symptoms justifying intervention must not be masked by the administration of sulphonamides, which at best will rarely reach the local area but will distort the clinical picture as a whole.

4. Wholesale use of sulphonamides in otitic infections is to be deprecated.

5. If a sulphonamide has been given before drainage, the most valuable help in assessing the beneficial effect of the drug is gained by examining the drum-head frequently. If this continues to bulge myringotomy should not be delayed, because the condition, which otherwise appears to be improving, is in reality becoming more perilous. Persistence of deafness is also a strong indication that all is not well.

6. Patients taking sulphonamide drugs sometimes do not acquire any resistance of their own to the infection with which they are contending, and it would seem that recurrences are more likely in these cases, which, in addition to developing no immunity to the infection, may find the micro-organism has become sulphonamide-resistant. Recently a schoolboy had five extremely severe and prolonged attacks of tonsillitis (haemolytic streptococci) over a period of three and a half months; each attack lasted at least a fortnight, with high fever. All attacks, except the last, were treated with sulphonamides, and it was assumed that, in addition to developing no individual immunity, the micro-organism had become sulphonamide-resistant. Tonsillectomy was uneventful, and has resulted in freedom from any further trouble.

7. It is needless to emphasize the uselessness and danger of giving inadequate or erratic dosage of sulphonamides. If given at all, full doses at four-hourly intervals, day and night, are required for the full period, and the drug should be continued for a time after complete subsidence of fever.

General Comment

It would seem, then, that the chief dangers to be met with in cases of otitis treated with sulphonamides are found in those in which this has been the sole treatment. Such cases appear to the unwary to have been completely relieved, and no further anxiety is felt about the ear condition—and there may be much to support such an attitude. Sometimes the middle ear may return to normal, with recovery of hearing; more often the tympanic membrane, still intact, will remain oedematous, the middle ear congested, and with much loss of hearing. Mastoid tenderness is frequently absent. In such a case it is difficult to know what has been happening in the three or four weeks following the initial infection and apparent subsidence, but such signs and symptoms as pallor, loss of weight, dirty tongue, vague headaches, and (probably most important of all) congestion of the unperforated drum-head, with deafness, should give rise to the suspicion that a slow, latent, and insidious infective process which will not undergo resolution is going on all the time. Such masking is the origin of greater potential dangers than those seen in pre-sulphonamide days, in which the course of the infective process could be clearly followed.

Some help can be gained by radiography, and this should always be used in doubtful cases. Mastoid tenderness and swelling in these atypical cases usually manifest themselves late, about the fifth or sixth week, but not before a critical latent phase has passed, in which the lateral sinus, the meninges, or the brain might just as easily have provided the first sites for an extension of the original infection.

In cases, or suspected cases, of thrombophlebitis of the lateral sinus and brain abscess, reliance should not be placed on sulphonamide drugs, which (*a*) will fail to eliminate the infection and so lead to catastrophe, and (*b*) will mask the indications which would suggest the necessity for surgical intervention.

One must remember that sulphonamides bring about a condition of bacteriostasis; unless the patient's immunity is sufficiently raised, either artificially by appropriate serum or naturally by his own efforts, the micro-organism will be capable of regaining its activity. This was well seen in Case 2, in which large doses of sulphadiazine (60 g. in 8 days) brought about such a great improvement that the hemiparesis and hemianaesthesia were almost eliminated and the signs of meningitis had practically cleared; within a few hours of stopping the drug, however, the patient relapsed into coma, with turbid C.S.F. and incontinence, and was only restored to consciousness with the greatest difficulty by means of intravenous sulphapyridine. Large doses of intravenous serum and penicillin intrathecally and intramuscularly led to eventual recovery. It would appear possible that, in the future, it will be proved that penicillin is capable of bringing about sterilization and absorption of purulent foci, and so dispense with the need for surgical drainage in these cases; this is a feat which it is beyond the power of sulphonamides to achieve.

BONE-MARROW TRANSFUSION IN INFANTS AND CHILDREN

INTRODUCING A SPECIALLY DESIGNED NEEDLE

BY

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Some skill and experience are required to insert a needle or cannula by the cut-down technique into a vein of the ankle, cubital fossa, wrist, or scalp of premature and small infants. These, however, are a group of patients who not infrequently need parenteral fluid. An attempt has therefore been made to develop a more simple method than the intravenous, and one which would be at least as safe and sure. The bone marrow of the tibia was the site elected. The marrow cavity in the sternum of infants, and in fact of considerably older children, is not large enough for this to be a practicable place for the reception of transfusion agents. Hamilton Bailey (1944) has reviewed the present position with regard to bone marrow for this purpose, and is favourably impressed. He mentions the winged Witts sternal-puncture needle as admirable for cannulization of the sternum in adults. In my opinion, however, a Witts needle or a Tocantins needle leaves much to be desired in use for an infant.

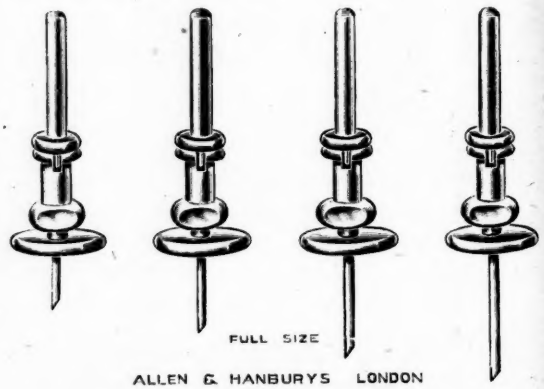

FIG. 1

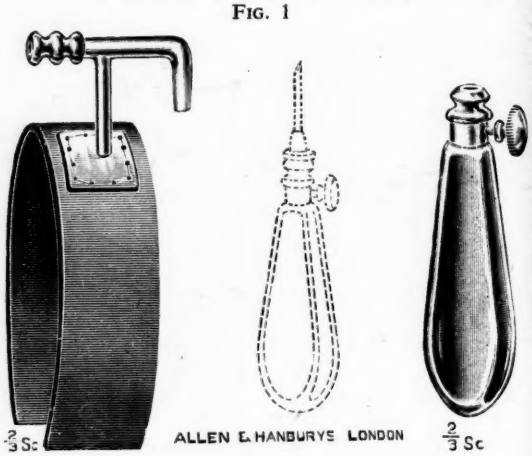

FIG. 2

The needle illustrated (Figs. 1 and 2) was designed for transfusions into the tibial marrow of infants and children. The following features may be noted:

(*a*) The needle is light.

(*b*) The distance between the mount and the flange is short.

(*c*) The flange is immovable, and so the extra weight of a screw mechanism is avoided. The least possible movement of the needle in the cortical bone is thus allowed and this junction remains firm.

(*d*) Four different lengths of needle below the flange have been made: 1/4 in., 3/8 in., 1/2 in., and 5/8 in. Size 18 S.W.G. is suggested for the two smaller; size 16 or 17 S.W.G. for the larger. The 1/4-in. size is suitable for premature infants and neonates; the 1/2-in. and 5/8-in. for about 5-year-old children or over. But the length of needle used should be according to the size of the child and the amount of subcutaneous fat.

(*e*) Each needle has its own stylet.

(*f*) There is one handle for the set, which can be screwed on to the stylet in order to get a good grip during insertion of the needle.

(*g*) The right-angled adaptor, with the strut to keep it firmly in position, leads the tubing along parallel to the limb. The rubber strip attached to the base of the strut is strapped round the limb. Occasionally, owing to fat or oedema or some other irregularity of contour, the strut on the adaptor seems too long and will not sit on the leg and in the needle satisfactorily. An adaptor without a strut is therefore supplied in each set. The tubing should be fixed in two places with strapping—to the limb and to the splint; the splint should extend 4 in. to 6 in. beyond the foot.

Technique of Insertion

The place chosen on the tibia is the flat subcutaneous plate of bone inferior and medial to the anterior tibial tuberosity. This area is well below the epiphysial line, above the nutrient artery, and there are no important anatomical structures to which damage might be done between the skin and bone. It will be remembered that a cross-section of the tibia is roughly triangular. A non-touch technique is maintained so far as is possible, as during any operation involving bone.

1. The limb is splinted in a semi-externally rotated position (as for cutting down on to the internal saphenous vein at the ankle).

2. The skin is cleaned. Local anaesthesia of the skin, subcutaneous tissue, and periosteum is given with 1% novocain. The area is massaged to disperse the anaesthetic, and the anterior and medial borders of the tibia are palpated.

3. The needle and stylet, with the handle attached, are taken and, with the needle at right angles to the plate of bone—i.e., pointing postero-laterally with reference to the leg itself—are inserted with a firm twisting motion as when using a bradawl. The needle passes through the cortical bone with a crisp crunch. The flange rests lightly on the skin.

4. When the stylet is withdrawn a small amount of marrow may well up or be sucked up into a syringe; it seldom flows out freely.

5. The adaptor, filled with the transfusion fluid and attached to the tubing from the dripper and bottle (which has already had air bubbles excluded), is fitted to the needle and the flow started.

Fig. 3 shows the arrangement for transfusion through the bone marrow of the tibia.

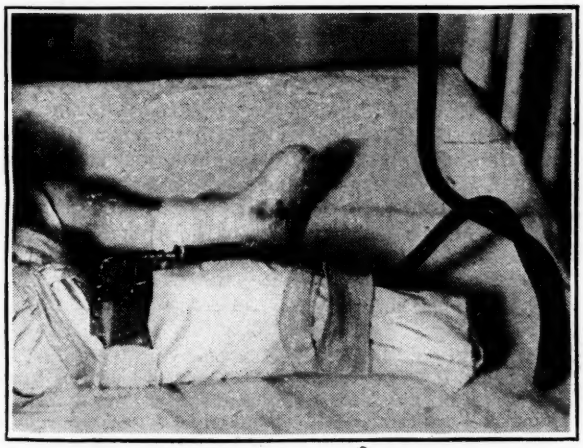

FIG. 3.—Close-up of the arrangement for transfusing through the tibia in the case of a 3-months-old boy with bilateral mastoiditis.

Any of the usual transfusion fluids may be given in this way—saline, Hartmann's solution, blood, serum, or plasma. When using blood it is often necessary to increase the pressure by raising the bottle as much as six feet above the needle; or, alternatively, the blood may be diluted. The constant rate of drip which can be maintained is usually remarkable; the rate required is adjustable by a screw clip on the tubing. The older the child the larger the marrow cavity and therefore the faster the flow can be. The longest time one transfusion has been maintained was six days. When the needle was taken out it was still firmly held in the bone, and there was no reason to suppose that the transfusion could not have been continued had it been necessary.

Particular attention might be paid to the following points:

Emphasis is laid on the necessity for inserting the needle at right angles to the surface of the tibia. This is facilitated by the position of semi-external rotation of the limb. The diagram (Fig. 4) shows the error of attempting to insert the

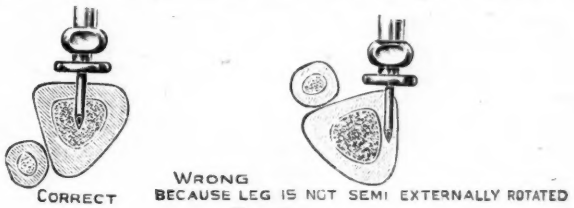

FIG. 4

needle in the antero-posterior direction of the limb, as might happen if the leg were not fixed in the correct position. It is probably wise to inject a small amount of saline through the needle as soon as it has been inserted, to ensure that the marrow has been entered satisfactorily. The adaptor can then be securely connected.

If the needle does work loose, fluid will leak back into the subcutaneous tissues and the limb will become oedematous; the transfusion must then be stopped. A careful watch for oedema should be kept during the first hour or two of the transfusion, because, if oedema is allowed to develop, a pressure necrosis of the skin beneath the flange might result.

Dislodging by kicking with the other leg can be prevented by anchoring it with a bandage noose round the ankle. A small cradle will prevent disturbance by the bed-clothes.

If a second transfusion is required soon after the first has been discontinued the other tibia must of course be employed, as leakage back through the original hole will make that leg impracticable.

It would seem wise to reiterate the need for strict asepsis, since osteomyelitis, though it remains theoretical, is the haunting danger.

The procedure can be facilitated by giving a feed or an appropriate dose of chloral hydrate; these will quiet the baby and often surprisingly help the initial stages of the transfusion.

I want to thank Dr. Donald Paterson and Mr. T. Twistington Higgins for their interest, and Dr. King Lewis for his encouragement and suggestions. The needle and attachments have been made by Messrs. Allen and Hanburys Ltd.

REFERENCE

Bailey, Hamilton (1944). *British Medical Journal*, 1, 181.

"CELLOPHANE" FOR THE TREATMENT OF BURNS

BY

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Major, R.A.M.C.

Since Davidson's communication in 1925 many other observers have contributed to the literature on the treatment of burns. Usually their methods have had at least two factors in common: first, the exclusion of air, to promote the patient's comfort and to diminish shock and infection; secondly, to allow epithelization to proceed undisturbed by frequent and painful dressings. Within the last three years some observers have emphasized the similarity between the pathology of a burn and that of other wounds, and have reiterated the harm of tissue irritants in the toilet of the burn and demonstrated the value of firm pressure upon the area to support the damaged vascular bed. In the American literature the application of these principles has come to be known as the "cleansing, rest, and compression" treatment of burns. The

work of Allen and Koch (1942) and Siler (1942) has been especially convincing, and their results compel a trial of their methods.

A modification of this form of treatment has been employed in 10 consecutive admissions to a general hospital. The modification advocated is the use of an occlusive dressing medicated with sulphanilamide through which the burned area may be easily inspected. This is achieved by the use of "cellophane" and unguentum sulphanilamidi. The number of cases is unfortunately very small, and there has been no investigation of the blood chemistry or viscosity in the cases studied. All the burns were of the second degree, the average stay in hospital was about 21 days, and all the patients returned to duty. The results have been so uniformly successful that it is thought that a description of this form of treatment will be of value, especially now when the transportation of burned Service personnel presents such problems in the prevention of shock and infection. The use of "cellophane" as a splint for Thiersch grafts has been described by Poth (1942); Ellis (1943) recommends using this material as a dressing for tropical ulcer; but in the literature at my disposal it has not been mentioned as a dressing for burns.

Local Treatment of the Burned Area

Using general anaesthesia, the intact skin surrounding the burned area is thoroughly cleaned with white soap and water, and then the toilet of the actual burned area is meticulously carried out. The importance of gentleness and the use of normal saline in irrigating the burned area has been sufficiently stressed in the original papers, but it is well always to remember that "in any burn the vascular bed of the area has been seriously affected."

The medicated sheets of "cellophane" are then applied so that each overlaps the other for about an inch. These sheets adhere to one another and to the intact skin, and the entire burn is embraced in an envelope that permits of easy inspection and prevents contamination. Next, perforated oiled silk is wrapped around the "cellophane." This is not essential, but does help to prevent the wool (which is what we have had to use for compression) from adhering to the dressing and tearing it when removed. The use of sea sponges for compression would probably make such a precaution unnecessary. A firm bandage completes the dressing. After 48 hours the burn is inspected. The "cellophane" may be in some parts blistered by collections of serum. Any such bullae are trimmed away with scissors, and the area affected gently cleaned with saline swabs and another sheet of "cellophane" applied. This transparent dressing adheres lightly to healed burned areas, but if carefully removed does not damage the delicate new epithelium. However, no attempt at removal should be made until it begins to separate itself. The "cellophane" does not adhere to the unhealed areas, so that damage to the tissue, if the dressing must be changed, is minimal.

If the case is received so late that the burn is already frankly infected, a nicety of surgical judgment is demanded. One may try to convert an infected wound into a relatively clean one by prolonged and gentle irrigation (Bisgard *et al.*, 1942) and then rely on the bacteriostatic action of the sulphanilamide to keep the burn clean. Or saline compresses or a Bunyan–Stannard envelope (if available) may be used for 48 hours and the burn then again closed in the "cellophane" envelope.

Some of the patients in this series have arrived many hours after the burn was received and after a prolonged journey in a motor-lorry. In such cases I have usually applied the "cellophane" for 48 hours to avoid the trauma and distress of frequent dressings in an already exhausted patient. If on inspection there is a collection of pus in any one part, the overlying dressing is cut away and saline compresses are applied. The "cellophane" in the uncontaminated areas is left undisturbed and is in no way harmed or made soggy. Usually after 24 or 48 hours these infected areas are clean enough for the "cellophane" to be reapplied, and healing then occurs uneventfully.

Preparation of the Dressings

The "cellophane" sheets may be medicated, sterilized, and stored for immediate use when needed, or the unguentum sulphanilamidi (sulphathiazole has not been available to me) may be spread on the sterile sheets of "cellophane" just before their application. All types of transparent wood-pulp tissue have been used, and have all been salvage. The paper is sterilized by first dusting with talc and then autoclaving for 20 minutes at 15 lb. The talc is then dusted off and the "cellophane" is placed flat on a sterile towel and a thin layer of unguentum sulphanilamidi 10% is spread on. It is then folded four times, with the non-medicated surface to the outside. Several such pieces are sealed in a conveniently sized tin and are always available for immediate use.

First-aid Measure

It is suggested that the application of a powdered sulphonamide to the burn or wound, followed by the immediate application of "cellophane" sterilized by boiling, offers many advantages. It permits of easy and painless inspection of the burn when the patient reaches the centre and the ultimate treatment has to be decided, and does not in any way prejudice the form of treatment to be adopted. It would prevent contamination and be bacteriostatic to infection already present in the burn. A dressing of this type is available almost anywhere.

An even more simple measure which could be applied in very forward areas when no medical equipment is available should be considered. In such circumstances the "cellophane" wrapping of a cigarette package could be applied to the burn, for its inner surface is almost certainly sterile; such a dressing would be comfortable and adequate until the patient was able to receive further treatment.

The satisfactory results achieved in this series were, as stated, all in second-degree burns. In third-degree burns, as always, treatment should be directed to preparing the burned area for skin-grafting, and the dressing would be of temporary value only.

This paper is published with the kind permission of my officer commanding, Col. David Bell, O.B.E., E.A.A.M.C.

REFERENCES

Allen, H. S., and Koch, S. L. (1942). *Surg. Gynec. Obstet.*, **74**, 914.
Bisgard, J. Dewey, and Baker, Charles P. (1942). Ibid., **74**, 20.
Davidson, E. C. (1925). Ibid., **41**, 202.
Ellis, M. (1943). *British Medical Journal*, **1**, 697.
Poth, E. J. (1942). *Surg. Gynec. Obstet.*, **75**, 779.
Siler, V. E. (1942). Ibid., **75**, 161.

SYMPTOMLESS ENLARGEMENT OF THE OESOPHAGUS

BY

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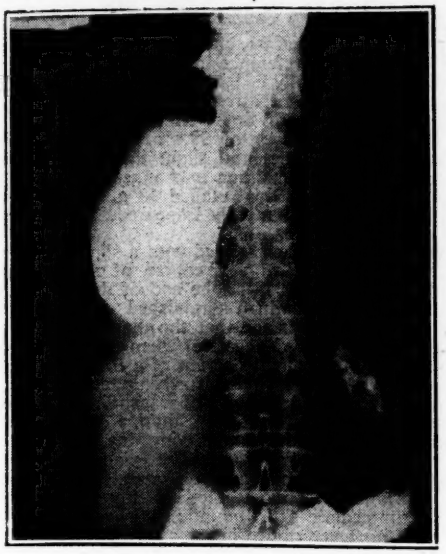
Many cases of enlargement of the oesophagus are on record, but these have all been associated with symptoms which led directly to the investigation of the oesophagus. The condition occurs over a wide range of age groups, and is believed to be secondary to achalasia of the cardia or to organic obstruction of the lower end of the oesophagus. In the case now to be described there were no symptoms, and the condition was discovered as a result of the usual routine examination of the chest.

Case History

A commercial traveller aged 57 was admitted to hospital on Aug. 29, 1941, complaining of pain in the joints; a diagnosis of rheumatoid arthritis was made. He did not complain of gastro-intestinal symptoms and had never had dysphagia, unexplained vomiting, regurgitation of food, or pain behind the xiphoid. There were no respiratory symptoms and he had not lost weight.

On examination of the chest the only abnormality found anteriorly was slightly increased vocal resonance in the right midzone. Posteriorly, abnormal signs were confined to the right base, where vocal fremitus was lessened, the percussion note impaired, breath sounds vesicular but diminished in intensity, and vocal resonance reduced. Movements of both sides of the chest were equal and there was no evidence of displacement of the mediastinum. The blood pressure was 118/68.

A plain radiograph of the lung fields showed a triangular shadow extending to the right of the right border of the sternum from above the level of the aortic knuckle to the convexity of the right dome of the diaphragm. A barium swallow revealed a grossly enlarged oesophagus (see Fig.). The shape of the lower end of the organ



could be seen only in an oblique view. The oesophagus was grossly elongated so that it was obliged to kink, the kink resting on the right cupola of the diaphragm. The terminal portion of the tube narrowed gradually to pass to the cardia by a fairly narrow channel which appeared to offer considerable resistance to the passage of barium. Three-quarters of a cupful of barium emulsion passed into the stomach within 30 minutes, and peristaltic waves were observed emptying emulsion from the oesophagus into the stomach. In an hour a trace of barium remained in the lower end of the oesophagus.

The radiological appearances did not alter over a period of 15 months, and now, two years after the condition was diagnosed, the patient is symptom-free. A barium follow-through showed no abnormality of the stomach or colon (cf. Etzel, 1937).

Discussion

Cases of dilated oesophagus described in the literature have usually been associated with achalasia of the cardia, a condition thought by Hurst (Hurst, 1914–15; Hurst and Rake, 1929–30), and also Rolleston (1896), to be due to an upset in the neuromuscular mechanism in the region of the cardia. Hurst visualized food being propelled down the oesophagus to be held up at the cardia, which did not relax. In consequence the oesophagus dilated to accommodate the food, and in time this resulted in a permanent dilatation of the organ. There was no question of paralytic dilatation, because violent, frequent, and ineffectual peristaltic movements were observed in the oesophagus.

All cases of achalasia of the cardia which have been examined histologically have shown inflammatory changes and fibrosis affecting the ganglion cells of Auerbach's plexus (Rake, 1927; and others). Many cases of achalasia are on record in which no histological examinations have been reported; but they are all cases which showed symptoms of obstruction, and there is no good reason to separate them from the above group.

It has been assumed hitherto that dilatation of the oesophagus in these cases was a consequence of the functional defect at the cardia, supporting evidence being some diminution in size following surgical relief of the functional obstruction. There is no record of an oesophagus normal in size before the onset of symptoms. This point is important because of the present case.

Apart from those cases with marked symptoms in which the diagnosis seemed probable on clinical examination alone, cases have been described with slight symptoms of obstruction but with well-marked radiographic changes (Shelburne, 1934; Belot and Nahan, 1936; Becquet, 1938); and a similar condition in children may be associated with considerable oesophageal dilatation (Rolleston, 1896; Cameron, 1927; Negus, 1936). Besides, there appears to be no direct relationship between the degree of obstruction and the extent of oesophageal dilatation (Brown Kelly, 1912), and oesophageal stenosis due to a neoplasm or fibrous stricture may not be associated with gross dilatation.

In the case here described there is delay in the emptying of the oesophagus, but some barium entered the stomach very rapidly and each peristaltic wave was associated with the passage of barium. The degree of achalasia, if any exists, must be minimal; more probably the delay should be attributed to the tortuous course followed by the oesophagus.

In the absence of histological material for study it is difficult to assign this case to a definite group, but it differs from what has been described as achalasia of the cardia, in the absence of symptoms, the absence of any evidence of spasm, and the abnormal shape and length of the oesophagus. It is difficult to make a reasonable suggestion as to its cause unless the issue be evaded by ascribing it to a "congenital defect." Experimental evidence which might have a bearing on the aetiology of this condition is meagre, but the following observations should be mentioned:

(*a*) McCarrison (1919) has described the effects of chronic hypovitaminosis-B on pigeons. The changes in Auerbach's plexus resemble those found in achalasia. The state of vitamin-B saturation of this patient has not been determined, but he exhibited no signs of vitamin-B lack.

(*b*) Experimentally, in animals, bilateral vagotomy led only to a transitory absence of peristalsis (and hence delayed emptying) in the oesophagus (Cannon, 1906–7), but when the longitudinal muscle coat was stripped from the subdiaphragmatic portion enlargement of the oesophagus resulted (cf. Netto and Etzel, 1934). The latter operation always resulted in the simultaneous removal of Auerbach's plexus, thus providing some direct evidence that enlargement of the oesophagus can follow damage to this plexus.

The cause of the oesophageal enlargement in this case is therefore obscure; there is no direct evidence as to its aetiology, but a congenital defect of the longitudinal muscle fibres is possible.

I am indebted to Prof. R. V. Christie for permission to publish this case, and for his helpful criticisms of this paper.

References

Becquet, R. (1938). *Arch. Mal. App. digest.*, **28**, 388.
Belot, J., and Nahan, L. (1936). *Presse méd.*, **44**, 1023.
Cameron, J. A. M. (1927). *Arch. Dis. Child.*, **2**, 358.
Cannon, W. B. (1906–7). *Amer. J. Physiol.*, **17**, 429.
Etzel, E. (1937). *Guy's Hosp. Rep.*, **87**, 158.
Hurst, A. F. (1914–15). *Quart. J. Med.*, **8**, 300.
—— and Rake, G. W. (1929–30). Ibid., **23**, 491.
Kelly, A. Brown (1912). *British Medical Journal*, **2**, 1047.
McCarrison, R. (1919). *Indian J. med. Res.*, **7**, 167.
Negus, V. E. (1936). *J. Laryng. Otol.*, **51**, 100.
Netto, A. C., and Etzel, E. (1934). *Rev. sud.-amer. Med. Chir.*, **5**, 395.
Rake, G. W. (1927). *Guy's Hosp. Rep.*, **77**, 141.
Rolleston, H. D. (1896). *Trans. path. Soc.*, **47**, 37.
Shelburne, S. A. (1934). *J. Amer. med. Ass.*, **102**, 285.

Medical Memoranda

Alternative Method of Treatment for Late Cases of Strangulated Femoral Hernia

Owing to the very high mortality associated with late cases of strangulated femoral hernia it is of interest to describe an alternative treatment which has proved successful. While not in any way decrying the standard treatment, there are no doubt many late cases to which the technique to be described could be applied. These patients are very dehydrated and exhausted; therefore it is essential to keep to the minimum the amount of manipulation at any one time.

Case Record

Mrs. A., aged 69, was admitted to hospital with a 5-day history of abdominal pain, vomiting, and increasing distension. Just before the onset of her symptoms a lump had appeared in the right groin, following a strain. On examination the patient looked very ill; temperature 99.8° F., pulse 110. Her face was ashen and appeared sunken, her tongue was dry and furred, and she was obviously very dehydrated. She complained greatly of thirst, and her mind seemed to be rather confused. There had been no action of the bowels for seven days. Examination of the abdomen revealed marked distension, with a large red tender swelling in the right groin, no doubt containing sloughing bowel and pus. Intravenous saline was begun immediately and the patient brought to the operating theatre. Under pentothal anaesthesia a small median subumbilical incision was

made, and the loop proximal to the strangulation identified. This was brought outside the abdomen on the left side, at its nearest point to the strangulation but without any undue tension. No further manipulation was carried out, and the abdomen was closed. A Paul's tube was inserted into this loop, which was about the middle of the small intestine; it will be noted that the ileostomy was performed on the side opposite to the strangulation in order to leave room for a later operation near the site of obstruction. Furthermore, the loop of ileum was brought entirely outside the abdomen in order to ensure complete drainage: an ordinary ileostomy, with a catheter, would probably not have sufficed.

Intravenous saline was continued, and five days after the ileostomy the patient was again brought to the theatre. Under spinal anaesthesia (light percaine) an oblique incision was made over the right iliac fossa, and the proximal and distal loops of the hernia were identified. These were clamped some three inches from the point of strangulation, divided, and an end-to-end anastomosis performed. The loops entering the hernial sac were closed off and oversewn. No great amount of manipulation was carried out, as the incision was immediately over the site of the anastomosis, and, furthermore, it was unnecessary to divide the respective mesenteries; the ends of the gut were just apposed to each other and anastomosed. At the conclusion of the operation the wound was sealed off by elastoplast, and attention was then turned to the mass in the groin. There was now a large fluctuant abscess with a patch of gangrenous skin. The latter was cut into with scissors, and the pus allowed to drain away. No gross intervention was carried out in this wound for fear of increasing the toxaemia. Intravenous saline was continued, and three days later the patient again returned to the theatre for closure of the ileostomy. Her general condition had greatly improved and she was well enough for a general anaesthetic. This operation entailed a further end-to-end anastomosis, as it will be remembered that a loop of ileum had been brought completely outside the abdomen in order to ensure better drainage. Saline drip was maintained for a further five days, making thirteen days in all; fluids by mouth had been allowed while the ileostomy was functioning, but these were stopped for two days after its closure. The patient improved rapidly, but the wound in the groin continued to discharge offensive sloughs for several weeks. Eventually this wound healed completely, even though a permanent sinus was anticipated from the lumina of the isolated piece of small bowel. The wound where the ileostomy had been closed broke down some days after the operation, and a fistula was established. This drained for about three weeks, and then healed spontaneously. The patient was discharged eleven weeks after the date of admission; she was very fit, and able to eat anything. All her wounds were well healed. It is now nine months since her discharge, and she is still in good health.

COMMENT

This case is of interest not because it describes a better method of treatment for late cases of strangulated hernia, but because this method is one that could probably be more often applied in certain cases. Though it entails three operations, none of them was in any way drastic or prolonged—in fact, there was only the very minimum amount of interference. It is a moot point whether this patient would have survived had the usual orthodox treatment been adopted.

My thanks are due to Mr. G. T. Mullally for his helpful advice during the treatment of this case.

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Abortion in Brucella Abortus Fever

The incidence of brucellosis in man is to a large extent an unknown factor because of the similarity of mild infections to the influenza group and the consequent infrequency of differential diagnosis; but in cattle the well-known, widespread, and to a large extent untreated abortion from brucellosis makes this disease an important feature of wartime dairy-farming and stock-breeding.

In temperate climates human brucellosis is predominantly a disease of the younger adult male, and the characteristics of the disease in the female, and especially in the pregnant female, are not generally familiar. In America, Huddleson (1939) states that "there is no tendency to abortion in ordinary cases of brucellosis," though, since de Forest in 1917, many cases have been noted (some with fatal termination); and Harris (1941) writes that "the subject of abortion in women due to *Br. abortus* infection has received much less attention than is its due." In this country references are scanty. Topley and Wilson (1936) write: "Infection during pregnancy is sometimes, but not often, followed by abortion. The organism may be isolated from the placenta and uterus of the mother, and from the stomach contents of the foetus."

In this connexion it may be of interest to record the case below, not as a proved case of brucellosis abortion, but in the hope that brucellosis may be more often considered as a cause of ill-health in general and as a possible cause of abortion in particular. In the last 8 years, in this dormitory town of 15,000 inhabitants, there have been 12 established cases of brucellosis—all of them serious ones. Mild and unrecognized cases would have at least doubled this number. There seems to be little evidence that the local milk supply is better or worse than the national average. None of the cases were occupational contacts with infected cattle.

CASE REPORT

Mrs. A., a nullipara aged 31, changed her milk supply on Dec. 1, 1942. On Dec. 16, with reference to a proposed pregnancy, she was pronounced gynaecologically fit by Dr. Helena Wright. Wassermann and Kahn reactions were negative. From Jan. 14, 1943, she had a mild attack of influenza for 6 days. Her last period was on Jan. 17. On Feb. 27 she had a fever of 99.4°, with malaise, frontal and occipital headache, anorexia, and slight limb pain. On March 4, the fever and condition remaining unchanged, a "blind" course of sulphadiazine was started; this totalled 18 g. The temperature fell at once, and the condition rapidly improved. Pregnancy had been diagnosed during this fever.

On April 3 a similar attack started with a slightly higher remittent fever, which was treated with a course of sulphathiazole. This seemed to have less effect. Near the end of this attack there was a slight loss per vaginam, which diminished over a course of two weeks, and it was at this stage that the diagnosis was made (other investigations having proved negative) when the pathologist reported an agglutination by the patient's serum of a *Brucella abortus* suspension in a dilution of 1 in 2500. A further attack began on May 24, which soon produced obvious signs of impending abortion. In spite of the usual symptomatic treatment, uterine action became noticeably more and more vigorous, and on May 30 a 6-in. foetus in excellent condition was aborted. The placenta was apparently healthy except for three small areas of recent necrosis and a slight odour. Unfortunately no pathological investigation was made. There was an immediate and dramatic improvement in the patient's condition, with no fever twelve hours after delivery and none since. (Three days before the abortion the temperature had risen to 101°.) An examination of the patient's serum on Nov. 3, 1943, showed a positive agglutination up to a dilution of 1 in 750. Her general condition had much improved, and she felt very well. On Jan. 17, 1944, the agglutination titre was 1 in 250.

Sulphonamide therapy was used during this illness—first because it was advised (as prontosil) by Manson-Bahr (1940); and, secondly, because protein shock and vaccine therapy had been of little avail in other local cases. Full doses of vitamins (including E) were given before and after conception.

Whereas the treatment of brucellosis is primarily the prevention of the infection in cattle, public health reports in the U.S.A. in 1938 proved that efficient pasteurization is a safeguard, except in occupational contacts; which seems an added argument for universal pasteurization until our milk is produced uninfected.

My thanks for help and advice are due to Dr. Helena Wright, Miss S. G. Mocatta, F.R.C.S., and Prof. L. P. Garrod.

Harpenden. A. R. H. WILLIAMSON, M.R.C.S., L.R.C.P.

REFERENCES

Harris, H. J. (1941). *Brucellosis, Clinical and Subclinical*, New York.
Huddleson, I. F. (1939). *Brucellosis in Man and Animals*, New York.
Manson-Bahr, Sir P. (1940). In *Index of Treatment*, ed. by Sir R. Hutchison, Bristol.
Topley, W. W. C., and Wilson, G. S. (1936). *Principles of Bacteriology and Immunity*, 2nd ed., London.

Observations on Personal Infestation by he Acarus scabiei

The following points which I noted during the infestation may be of interest.

CASE NOTES

On Oct. 24, 1942, at 2.10 p.m., a particularly active female mite just removed from a patient was, for convenience of observation, placed upon the interdigital web of my left hand between thumb and index finger. The mite quickly moved a distance of 1 cm. and, lodging in a furrow of the skin, tilted its body obliquely with the aid of its hind-leg bristles and began to bore into the side of the furrow. The white translucency of the mite, the pie-crust edge, brown appendages, active silk-like bristles, and globular body were all apparent when viewed through the 1/3 objective microscopical hand-lens.* Within a very few minutes the head and appendages were buried, but it was 67 minutes† before the distal end of the mite completely disappeared, leaving the glistening hinder bristles waving posteriorly. A clean-cut, rather darkened upper edge of the stratum corneum was visible where the mite had started to burrow, while the blurred brown anteriorly placed appendages could be seen through the translucent stratum corneum.

*For really close observation the low-power (1/3) objective lens of the microscope used as a hand-lens is, with practice, found to be very convenient; a small ink-dot, marked on the web of the hand, near which the itch-mite should be deposited, serves as a quick guide to its position. The observer's eye should be placed near to the proximal end of the threaded metal-piece.

† Munro (1919) states that under favourable warm conditions the mite can conceal itself completely in so short a period as 2½ minutes. I have been less fortunate, however, in finding a sufficiently virile mite, since upon the several occasions when I have carried out similar experiments upon my own person I have been unable to observe the mite so much as bury its head and appendages in less than a quarter of an hour or its entire body in less than one hour.

By 10.10 p.m. of Oct. 26—i.e., two full days—the mite had progressed 0.1 cm. At 10.30 p.m. of Oct. 29 itching was noticeable in the interdigital cleft between the middle and ring fingers of the left hand. At 9.30 a.m. of Nov. 11 there was severe itching just proximal to the original burrow. On the evening of Nov. 12 there was severe itching in the same places, and evidence of small reddish papules on the fingers between the second and third metacarpal bones and towards the proximal end of the thumb. On Nov. 13 itching of the hands was noticed while wearing heavy warm gloves and again when sitting near the fire. A few small reddish papules on the hairy area immediately proximal to the left thumb were noticed, in each case, to be situated in a hair follicle. This would tend to suggest that hair follicles, in addition to the thin-skinned areas between the fingers, are considered suitable burrowing sites by the young larvae. From this time until Nov. 18 itching was very marked and had spread to various areas of the skin, including the medial and lateral aspects of the upper arms; anterior aspects of the axillae, where one or two red papules were visible; buttocks; scrotum; and antero-lateral aspect of the right ankle at the level of the proximal end of the external malleolus.

By Nov. 18 the burrow on the left hand was 3/8 in. long—i.e., after 24 days—and showing the peculiar yet typical dotted appearance which on closer inspection was seen to be due to perforations in the roof of the burrow. The burrow was opened along its length and the female mite was observed moving away from the blind end, and was subsequently removed, leaving a nest of four translucent and shining eggs at the extremity; except for some debris, no other eggs were visible. On Nov. 22 severe itching was evident on the anterior aspect of the right wrist, upon which were three small red papules. On Nov. 28 a burrow almost 3/8 in. long, and situated at the proximal and medial side of the left index finger, was noticed—i.e., very near the site at which the first sign of itching had been noticed on Oct. 29—and a mature female mite was afterwards removed from the blind extremity.

It was decided that, in view of the increasing irritability, the experiment should be terminated, and a hot bath was taken, followed by a single application of a solution containing soft soap, methylated spirit, and benzyl benzoate. A few days later because of further itchiness and irritability a second treatment was taken, since which time there has been no further trouble. It is to be recorded that throughout the experiment, from the time the original mite had become established in the skin, no effort was made to provide optimum conditions for its activities and the development of its progeny—i.e., the hands were washed frequently during each day.

Finally, with regard to the mature female itch mite and the burrowing process, I should like to make the following note.

NOTE ON THE FEMALE ITCH-MITE

From time to time various writers have indicated that the posteriorly directed spines prevent the retrogression of the animal in its burrow and are thus the means of causing its death. While there may be justification for the former contention, I am not a willing subscriber to the latter. The mite, did its instinct and destiny demand, could assuredly start burrowing slightly upwards and out of the distal end of the burrow; nor is there anything in the configuration of its body to suggest that it could not do so. Besides, it seems reasonable to suppose that the animal must continue to burrow to derive nourishment in order to live. The dorsally placed spines, together with the extreme toughness of the chitinous framework, are admirably suited to withstand both the pressure from the roof of the burrow and that from external influences; the spines, indeed, by elevating the roof of the burrow, serve as the animal's "pit-props" and assist in its passage through the skin. The fact that the spines point backwards and prevent the animal's retrogression is of secondary importance, and is not, in my opinion, equivalent to a death sentence.

COMMENTS

While no direct observations were made as to when the first eggs were laid or hatched, there was, in view of the itching noticed on Oct. 29, strong presumptive evidence to show that eggs had hatched and larvae migrated and burrowed in slightly under 5½ days.

It is to be regretted that the beginning of the second adult burrow was not noticed at an earlier date, but this undoubtedly was due to the feeling of itchiness in several places. Assuming, however, that the second mature female was burrowing at the same rate of progress as the first, then the second burrow, nearly 3/8 in. long when noticed, must have been started about 24 days prior to Nov. 28. This would leave an approximate period of 10 days between the beginning of the experiment and appearance of the second adult burrow, and would tend to support Munro's observations—namely, that the complete life-cycle (i.e., egg-to-egg stage) varied between 7½ and 13 days. The fact that generalized itchiness was apparent from Nov. 13 onwards is perhaps an indication that approximately three weeks is needed for the mite to propagate and establish its offspring and produce the typical signs of early scabies.

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REFERENCE

Munro, J. W. (1919). *J. R.A.M.C.*, **33**, 1.

Reviews

PAUL BERT AND HIS GREAT WORK

Barometric Pressure. Researches in Experimental Physiology. By Paul Bert. Translated from the French by Mary Alice Hitchcock, M.A., and Fred. A. Hitchcock, Ph.D. (Pp. 1,055; illustrated. $12.00.) Columbus: College Book Company. 1943.

Politicians are occasionally elected to the Fellowship of the Royal Society, though only the unduly cynical could trace a relationship between the career of politics and that pursuit of truth which is the aim of science. Yet once or twice in history there has been born a man so split in mind or forthright in politics that he could achieve success in both pursuits. Such a man was Paul Bert, whose great work *La Pression Barométrique* was published in 1878, when he was already a deputy and soon to be made Minister of Public Instruction.

Paul Bert was born in 1833 in Auxerre, a town often visited in recent years by physiologists paying pilgrimage not to the birthplace of one of the greatest of their craft but to the "table de premier ordre," with its terrine de foie gras truffé and its Chablis 1918, to be found at l'Epée. Beginning as an engineer, he forsook mechanics for the law, and then, becoming bored with the hard boundaries of jurisprudence, took to medicine and qualified in Paris at the age of 30. After acting as assistant to Claude Bernard, he succeeded him as professor of physiology in 1869. Meanwhile he was already better known as a politician of violently republican and anti-Catholic views, for which he was rewarded by Gambetta with Cabinet rank in 1881. His reputation as an administrator must have been high, for despite the death of his patron he was sent to Indo-China as resident-general in 1886 to right a state of things which had become embarrassing to the Government at home. Here again he was very successful—so much so that when he died of dysentery only five months later even the medical press forgot to mention that he was a physiologist.

Yet in the midst of his political work he had found time to become the greatest physiologist of his generation. At first his interest was excited by travel in high mountains. He laid the foundations of our knowledge of mountain sickness, on which in later years Haldane and Barcroft and their followers on Everest and other great mountains were to erect the first story of a building which has grown so rapidly since war gave new significance to altitude. The foundations are firm enough to support a skyscraper. Later his researches covered a very wide field, for he was interested in everything even remotely connected with increase or decrease in oxygen supply.

La Pression Barométrique differs from many textbooks in that nothing in it has been copied from others. The historical section, which occupies half of the book, might well be taken as a model for modern writers. Concise but very readable, everything of abiding value has been taken not only from earlier scientific work but from travellers' tales, and set down in its proper context and critically surveyed. The experimental section covers the effects of increased and decreased oxygen supply on mammals, birds, ferments, micro-organisms, and vegetation. Though it might be assumed that everything of value here had long ago been absorbed into the body of physiology and pathology, the assumption would be wrong. This book cannot be read without the realization that the vein which it exposes has been by no means worked out.

As Prof. J. F. Fulton says in his foreword, it is tragic that the chaos of a far-flung war was required to bring Bert's work into its full meaning and perspective. His book has for a long time been almost unobtainable in its original language, and it has not before been translated. The labour of translation must have been immense, but it was well worth while.

CHEMOTHERAPY OF GONORRHOEA

Chemotherapy of Gonococcic Infections. By Russell D. Herrold, B.S., M.D. (Pp. 137. 15s.) London: Henry Kimpton. 1943.

Events nowadays move so rapidly that any book on the chemotherapy of gonorrhoea becomes out-of-date almost as soon as it is published, and *Chemotherapy of Gonococcic Infections*, by R. D. Herrold, is no exception. As an example of this the author appears to have had little experience of

sulphadiazine; and penicillin, which may easily supplant sulphonamides in the not too distant future, is not even mentioned. Sulphathiazole is the drug recommended, and the optimum dosage is given as 4 g. daily for five days, with which few will quarrel; the giving of the drug continuously for ten days, even in reduced dosage, will meet with less general agreement. When failure of cure occurs with one or two courses of sulphathiazole, injections of large doses of gonococcal vaccine are recommended, such as 600 to 800 millions, combined with oral sulphathiazole; these should produce a local reaction four to six inches in diameter and an elevation of temperature of one or two degrees. If the author had met more of the really sulphonamide-resistant cases now occurring in various parts of the world he might usefully have said more concerning their treatment; when penicillin is not available they often are the despair of the venereologist.

One suggestion is that all pathological reports should, like serum tests, be returned as "positive," "doubtful," or "negative"; there is much to be said for this, especially if, as Dr. Herrold suggests, the pathologist adds any special remarks which are likely to be helpful to the clinician. The statement on page 88 under "Epidemiology" that "at least 10% of all infections in the male are followed by a two- or three-month period of infectivity, with few or no clinical symptoms" requires confirmation; if this means that 10% of apparently cured cases remain infective for two or three months, many venereologists would disagree. Apparently prophylaxis not only for Service men but for civilians is recommended; a warning is wisely uttered against the use of oral sulphonamides for this purpose. The last chapter contains 62 case histories illustrative of certain points, and there is a long list of references.

This is a useful but not outstanding publication; the subject lends itself rather to the form of a pamphlet, which can be reprinted frequently with amendments, than to a book.

MEDICAL MYCOLOGY

Elements of Medical Mycology. By J. H. Swartz, M.D. Introduction by F.D. Weidman, M.D. (Pp. 190; large folding chart. 21s.) London: William Heinemann.

This is a very useful little book, and can be recommended especially to the laboratory worker. It makes a somewhat different approach to the subject from what is usual in medical works on this subject, for it adopts a botanical rather than a clinical attitude. There are useful tables showing the place of the various pathogenic fungi among the Fungaceae as a whole, and Dr. Swartz takes the trouble to define the various terms, such as sterigma, chlamydospore, fuseaux, etc., which may be familiar to the real mycologist but prove a stumbling-block to the inquiring mind of the ordinary doctor. These definitions are clarified by diagrams, and it must be added that the numerous photomicrographs with which this book is copiously illustrated are also a great help.

On the clinical side the author has given more consideration to treatment than to diagnosis, and there is a full discussion of the management of dermatophytosis, a subject which includes all the commoner forms of mycotic infection of the skin, such as "dhobie itch" and "athlete's foot," and the various "id" eruptions, which are manifestations of cutaneous allergy to an active focus of fungus infection. We are glad to notice that Dr. Swartz emphasizes the desirability of gentle measures in almost all cases. He mentions one remedy of which we do not remember to have heard before, and that is the inhalation of ethyl iodide; he says it is valuable in stubborn cases, but when using it certain precautions are necessary.

A very practical little book, and just as useful to most medical practitioners as many more expensive and ambitious volumes on this subject.

Notes on Books

The Road to Maturity (Victor Gollancz; 6s.) is one of the best if not the best book yet published on the subject of sex education. As Sir Richard Livingstone says in the foreword: "It sees sex as a whole; as a purely natural phenomenon with definite physical facts and laws, and as a force involving some of the highest spiritual faculties of man. It makes the problem clear, suggests definite methods for solving it." Dr. EDWARD F. GRIFFITH edits the book and himself contributes the framework. Several authorities, including those with practical experience as heads of both boys' and girls' schools, contribute chapters, and Dr. Noel Harris writes a chapter on psychological types. Perhaps the most valuable part of the book is Part 2, which comprises the text of three lectures given to boys of secondary school age, at puberty, at about sixteen, and just before they leave. Medical men and women have a very considerable responsibility both in giving sex education themselves and in advising others who may be called upon to do the actual job. They will find this book an enormous help in clarifying their ideas and giving valuable suggestions as to how to set about this difficult task. No doubt there is nothing that they will not have known before, but to know a subject and to put it across effectively are not the same thing.

An illustrated pamphlet, *Sokol: the Czechoslovak National Gymnastic Organization*, by F. A. TOUFAR, a member of the Sokol instructors' staff in London, has been published at 6d. by George Allen and Unwin. Here will be found an account of the origin and growth of the movement from a small gymnastic society into a national organization inspired by a powerful national sentiment.

The second edition of Dr. I. SIMSON HALL'S book *Diseases of the Nose, Throat and Ear* was reviewed in these columns on Dec. 20, 1941. It is now followed by a third edition (E. and S. Livingstone; 15s.), for which the subject-matter has been revised and brought up to date and some new plates and diagrams added. A feature of the book is its illustrations, of which eight are coloured plates.

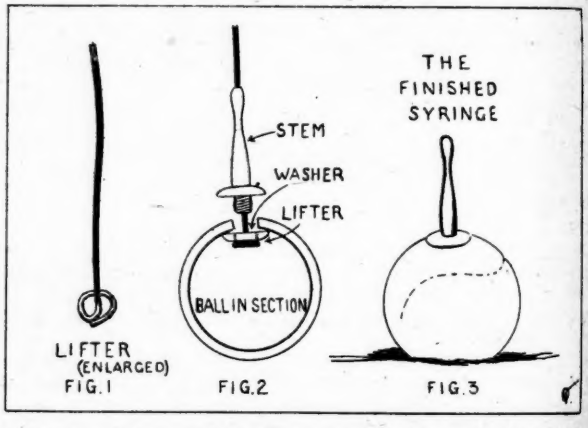
Preparations and Appliances

A RECONSTRUCTED EAR SYRINGE

Dr. PERCY TATCHELL writes:

When a rubber ear syringe wears out to-day it is rather hard to replace the rubber; but there are plenty of old tennis balls about. If a discarded syringe is pulled to pieces, a large washer will be found inside screwed on to the stem to keep the latter fixed; it is put there by the makers before the two halves of the ball are vulcanized up. The puzzle is how, having got the washer inside the tennis ball, to screw it on to the nozzle. At first sight this looks impossible, but the thing that makes it feasible is a piece of very soft wire about 6 in. long: copper would do, but electric fuse wire is ideal.

First burn a hole in the tennis ball with a red-hot iron of the right size to admit the screw of the stem—an old rat-tail file will answer the purpose. Next twist up a "foot" on the end of the wire to make a lifter (Fig. 1), of such a size as will pass



through the hole; and, having passed it into the ball, thread on the washer to the wire; then tipping the washer on end, still keeping it threaded, squeeze it through the hole, which has been compressed to a slit by side pressure. The washer will fall to the bottom of the ball, and lie on the foot of the wire lifter. By raising the wire the washer will be seen immediately under the hole. If the stem of the syringe is now also threaded on the wire, the appearance will be as shown in Fig 2.

Pass the stem on down into the hole, and by wriggling the wire the threaded part will eventually be felt to engage in the washer; and having been previously soaped it can be easily screwed up tight: the slight pressure against the inner side of the ball prevents the washer from rotating. Then comes the great moment: a sharp pull on the soft wire; it straightens, and out it comes. (Fig. 3.)

If you are a little doubtful of the asepticity of the ball, it can be flamed and painted.

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SURGERY IN THE EIGHTH ARMY

In these days of momentous happenings some of the less spectacular achievements of our Army, which at another time would command much attention, are liable to fade into relative obscurity. For this reason a review of certain aspects of the work of the Medical Services with the Eighth Army during its advance from el Alamein to Italy, which concludes in this number of the *Journal*, is to be welcomed as a permanent record of an evolutionary phase in military medicine which presents many features of great interest. Brigadier Charles Donald draws a vivid picture of the scene from the point of view of a consultant surgeon who is as deeply concerned with questions of tents and beds, the location of skilled surgeons and nurses, and the optimum disposal of the wounded man, as with details of surgical technique.

Each theatre of war has its own characteristics which control its development and present it with its own peculiar problems. In this campaign sandstorms, heat, shortage of water, flies, mosquitoes, all played their part; but the dominating feature which, particularly in the African phases, influenced every decision and plan was the weary length of the communications. The further the Army advanced the longer became the journey the wounded man had to make to the base hospital, much of it in ambulance cars over open desert and tracks of a degree of roughness which beggars description and which made the journey an ordeal. This was brought painfully to notice in the pre-Alamein phases of the Middle East war, when fighting ebbed and flowed between the Egyptian frontier and Benghazi, and many lessons were learnt which found successful application in the period now under review. The most important of these was that surgery and other specialized treatment must be brought forward to the patient as near the fighting line as possible. This decision led to the development of mobile units, such as the surgical team (precursor of the modern field surgical unit) and the field transfusion unit, both of which worked wherever their services were required from casualty clearing station to forward field ambulance; and of other special surgical units which functioned up to casualty clearing station level. Casualty clearing stations, the most forward units with facilities for holding patients, had in their turn to acquire a hitherto unknown degree of mobility, and be prepared to move at the shortest notice. By splitting them into heavy and light sections further elasticity was attained, and units "leap-frogged" over one another in such a way that a continuous chain of staging posts was maintained from front to base. But it is not sufficient merely to provide surgery: it has to be the best surgery of its kind, for at no other stage is skilled treatment so richly rewarded, or indifferent treatment more liable to be followed by complications and delay in healing, if nothing worse. Brigadier Donald wisely stresses the fact that military surgery in such surroundings, crude though it may appear at first sight to the new arrival from a fully equipped hospital working under peace conditions, is none the less an art in itself, in which skill and experience are just as essential to achieve the best results as in any other type of surgery. The policy of putting young surgeons through a term of apprenticeship in a base hospital under the tuition of officers with forward experience, and later in a staging post on the lines of communication, before passing them on to field units, is one that has much to commend it, as is the appointment of an experienced consultant to devote himself to the control of forward surgery, and to ensuring that the right man is in the right place.

As experience ripened, the build-up of an advanced operating centre forward of a casualty clearing station became more or less standardized as two surgical teams and a field transfusion unit attached to the main dressing station of a field ambulance (the new unit, the field dressing station, had not then been introduced in the Middle East Force). Of the special surgical units the orthopaedic team, because of the long periods its patients had to remain under observation and treatment, found no place in forward areas, where "all surgeons must be orthopaedists up to a point." On the other hand, an experimental grouping of sections of a maxillo-facial and a neurosurgical team with an ophthalmic team proved a striking success, and thereafter this "unholy trinity" were kept together, usually at a casualty clearing station, working in the closest co-operation and usually in the same theatre. Chest teams were not brought right forward, the policy being to maintain one at an advanced general hospital. With this chain of units disposed as close to the fighting line as circumstances would permit, the standard and scope of the treatment afforded to the wounded man reached a high level.

To the transfusion service Brigadier Donald pays a generous tribute. The officer of the field transfusion unit, working constantly in company with his colleagues of the surgical teams, in most cases took over the management of the pre-operative ward in addition to his duties as resuscitation officer, and became an integral part of the team. Such an arrangement has everything to recommend it. Perhaps the most valuable contribution which the transfusion service made to the advancement of its efficiency was the system of supply which it developed. It became apparent that distribution must be controlled by personnel specially nominated for this purpose, and a field transfusion unit, equipped with additional transport, was detailed to provide one or more "advanced blood banks" and to institute a "door-to-door" delivery of transfusion equipment and fluids. The results were eminently satisfactory. Mention might also be made of the "travelling transfusion" devised by Captain Lucas[1] which in many cases proved of vital importance in maintaining the condition of seriously wounded men in transit from one unit to another.

1 *Lancet*, 1943, 2, 503.

With all these facilities available, and a lengthy line of communication stretching behind to the base hospital, the decision when to evacuate and when to hold the patient often became an acute one. Administrative officers, with their eye on future commitments, had perforce to urge evacuation where the surgeon, for the patient's sake, would fain have retained him. Compromise was effected, and selected serious cases, amounting to from 3 to 5%, were retained where they were operated on, while the remainder passed on down the chain of staging posts till the base was reached. The dictum that "no one is fit for the air who is not fit for the road" may surprise those whose experience of air travel is limited to peacetime conditions and who have visualized the smooth and rapid air journey as the ideal method of transporting wounded. In a forward area the disadvantages of air evacuation for the very seriously wounded lie not in the air journey but in the rough passage by road between hospital and aerodrome, and, once there, in the inevitable and often protracted delay, with limited nursing facilities, before the patient can be emplaned. Nevertheless many thousands of selected sick and wounded were transported to the base in this way. Air evacuation proved specially useful for post-operative patients who, though fit to travel, could not stand a prolonged journey.

To all who served in the last war it will be obvious that the conditions which then obtained in France and Flanders bear little or no resemblance to those in which the Eighth Army operated. One was a static war: the other essentially a war of movement, in which mobility, elasticity, and adaptability were the all-important keynotes. Though the operations which lie before us will no doubt cover the ground occupied in 1914–18, the *tempo* is more likely to be that of the mobile warfare experienced by the Eighth Army, so that their experiences and the methods which they developed are worthy of close study. Modifications designed to afford greater mobility and flexibility have recently been introduced into the structure and establishment of medical field units, and it can be confidently anticipated that the lot of the wounded man will be made easier by the application of the principles which have been defined and the methods which have been evolved in these recent campaigns.

DEPARTMENTAL PRESCRIPTION

A recent pamphlet issued by the Ministries of Food and Health, with the approval of the Food Rationing (Special Diets) Advisory Committee of the Medical Research Council, is entitled "Diets for Patients with Ulcers of the Stomach and Duodenum," and it is being sent to every general practitioner and to hospital staffs and others professionally interested. It deals with maintenance diets for patients with ulcers under wartime restrictions and not with the acute stage of the disease. Modern dietetic treatment of peptic ulcer is based on the work of Sippy, whose diets were high in milk and fat. Between the two wars a too-strict Sippy diet proved to be one of the most important causes of scurvy, and the diet was therefore progressively modified by the addition of puréed vegetables and fruits and fruit juices. As a result the provision of frequent feeds of pultaceous material, containing the essential nutritive principles and vitamins, became more important than a narrow preoccupation with the acid-lowering properties of milk and fats. This phase of development has undoubtedly eased the transition to the war period, during which milk is restricted to two pints a day, and eggs and fats are not freely available. This innocent-looking document does nevertheless raise certain major controversial issues, for the problems of dietetics in wartime soon bring us face to face with the control of a free profession. We are told that further copies of the pamphlet may be obtained from the Public Relations Division of the Ministry of Health, which is not a place medical men naturally turn to for information. A Public Relations Department is in effect a Government advertising agency, and advertisement, whether of patent medicines or Government Departments, is equally suspect to the profession. In fact, many doctors do not take at all kindly to instruction in the treatment of disease by the Ministry of Health or the Ministry of Food, as a letter in our issue of May 20 (p. 701) showed.

Wing Cmdr. Stanley Turner and his colleagues who signed the letter referred to perhaps rather overstate the case against the bureaucrat, who during this war has completely ousted Aunt Sally from popular disfavour. The two have one thing in common—not being allowed to defend themselves—and we think that the severe criticism of the Ministry of Food by Wing Cmdr. Turner and his colleagues might have been tempered with some recognition of the stupendous difficulties confronting the Ministry in this war and the phenomenal success which has attended its efforts in overcoming them. It is obvious that the doctor's freedom to prescribe diets for his patients in wartime is limited by the food that is available. It will be granted that in peacetime the prescription of a special diet is often the result of applying the art of medicine rather than of working according to the objective findings of the clinical pathologist and the biochemist. In the practice of medicine, where knowledge is so inexact, where, as Sir Thomas Lewis has put it recently,[1] "the idea that certain diseases are fully understood is an illusion," it is not necessarily a sign of wisdom to put more faith in the findings of the laboratory than in the observations at the bedside. Nevertheless in wartime the doctor, along with the rest of the population, has to submit to the administrator—and with as good a grace as possible. The administrator must necessarily try to grasp something which is tangible, and so will ask the practitioner who wants to have special rations for a patient with gout to give him some figures to go on—namely, estimations of blood uric acid. But the administrator is constitutionally incapable of understanding the point of view of the practising doctor, just as the latter also finds it difficult to see things through what appear to him to be the myopic spectacles of that fearful creature called the bureaucrat. Earlier in the war the Ministry of Food asked the doctor who wanted extra milk for his patient to hand the certificate to the householder, stating on it the disease the patient was suffering from. To get

[1] *Lancet*, May 13, p. 619.

the extra milk the householder had to pass the certificate to the milkman. That this procedure broke the professional confidence between patient and doctor, that it would entail endless personal embarrassment and distress to the tuberculous person whose condition would become divulged to the whole neighbourhood through the traditionally communicative milkman, quite plainly never occurred to the minds of the responsible officials issuing the order. A similar lack of imagination is behind the requirement to the practitioner to submit to a local food office the evidence of his diagnosis. The interval during which patient and doctor wait to have the diagnosis confirmed must be highly embarrassing to both. The disclosure of the condition diagnosed to the small chain of officials in the local food office must no doubt offer them a topic of conversation, and on a dull day no doubt a little harmless betting on the ultimate diagnosis transmitted through the usual channels might relieve the local administrative tedium. In wartime some control is necessary, but we refuse to believe that any system of control which is based upon distrust of the practising doctor can help either his patient or himself. Doctors rightly regard this sort of thing as intolerable. It is not possible to conduct the practice of medicine by orders, regulations, or departmental circulars.

All this is an illustration of what medical men at the moment fear from a projected national health service which would bring the control of the practice of personal medicine under local authorities and the Ministry of Health. We may be sure that the dietetic information in the pamphlet issued by the two Ministries is sound, because it comes from the Medical Research Council. But we question the justification for the issue of such a pamphlet by two Ministries which have no place in the field of personal medicine and which indeed in this case seem to be acting simply as medical publishers. But it is less for what it is than for what it portends that we debate this matter. Domiciliary medicine can never be efficiently practised on any other than an individual basis—that is to say, there must be complete freedom between the doctor and the patient to tackle a personal problem unobstructed by a third authority. There are already enough hindrances to the solution of the individual problem of the diseased person. There may be, first and most important, limitation of knowledge; secondly, there may be imperfect accord between doctor and patient; thirdly, there may be and often are all those obstacles to good health comprehended under the term "poverty." A fourth and formidable risk is that of making a mistake on a large scale. The individual doctor errs often enough, because he is constituted as his fellows are. But the kind of action now taken by the two Ministries, if persisted in in peacetime, may enforce and perpetuate error on a wide scale. Essentially, the control of the practice of personal medicine can be exercised through one channel only, and that is the channel of education: an education which must continue throughout the doctor's working life. And unless his conditions of work and the payment he receives for it provide him with time in which to read and reflect, then such an educative process cannot be continued; but the remedy is certainly not "medicine by circular."

DUST IN THE FOUNDRY

The foundry has long had the reputation of being a dusty place, but it has been difficult to assess the extent to which it affects the health of persons employed in it. A report[1] published by the Industrial Welfare Division of the Department of Labour and National Service of the Commonwealth of Australia carries a stage further the work done in New South Wales by Dr. Charles Badham and his co-workers. The risk to the health of foundry workers consists in damage to the lungs by dust, and in view of the variety of processes involving exposure to different kinds of dust—including silica, silicates, iron, carborundum, and coal—and different concentrations of dust varying from moment to moment throughout the working day, the problem is complicated. The overriding difficulty of evaluation is concerned with the latent period before the evils of exposure show themselves in the form of recognizable pulmonary disease, whether as definite silicosis or as another form of pneumoconiosis. In this study measurement of the air-borne dust was made by taking snap samples with the Owens dust counter to provide estimates of the numbers of dust particles in a given volume of air; but the snap samples were taken at intervals during the series of phases in a process and the time periods measured for each phase. From these data an average exposure was calculated and expressed in terms of particle-hours per c.cm. Thus, in a machine-moulding operation the mean particle concentration per c.cm. varied between 100 and 1,605 in the different phases of the operation, and the duration of each phase varied between 70 and 480 seconds per hour. The resulting average exposure for this operation was 163.9 particle-hours per c.cm. Similar observations were made at the seven foundries investigated, and comparisons could be made to indicate the relative risks as between operations, phases of operations, and these carried out in the different foundries. The operations studied in this way included moulding, shaking-out, sand-conditioning, and cleaning of the castings by blasting, rumbling, brushing, grinding, and chipping. For determining the composition of the air-borne dusts samples were collected by means of the Greenburg-Smith impinger, and these were submitted to chemical analysis. The most important single result of these analyses was the determination of the proportion of free silica in the dust. From observation of the lay-out, plant housekeeping, and ventilation provided in the seven foundries included in this study, and from the data obtained from the dust estimations and analyses, it is suggested that a dust exposure of 500 particle-hours per c.cm. is a practical working standard for the foundry industry, with the proviso that where the dust contains more than 50% of free silica the average exposure should not exceed 200 particle-hours per c.cm. It is not suggested that this standard would obviate any danger of developing silicosis or fibrosis, but that by its adoption the working conditions in foundries will be vastly improved.

This technical study was not expected to give an indication of dust concentrations which could be regarded as safe for workers; this is a medical question, and a statement on safe conditions could best be made as the result of a correlation of such dust estimations with medical examinations of workers who had been engaged for suitable periods of employment in the different processes, arranged to give satisfactory statistical data and to include clinical and radiological examinations.

[1] *Dust Hazards in Australian Foundries*, by A. A. Ross and N. H. Shaw. Technical Report No. 1, Industrial Welfare Division, Department of Labour and National Service, Commonwealth of Australia, 1943.

DIAGNOSIS AND TREATMENT OF DELINQUENCY

Since its foundation in 1932 the Institute for the Scientific Treatment of Delinquency has made steady progress. Dr. Edward Glover, the chairman of its scientific committee and a co-director of its psychopathic clinic, has reported on its work during the five years from 1937 to 1941 in a pamphlet entitled "The Diagnosis and Treatment of Delinquency" and published by the Institute. It forms a chapter in *Mental Abnormality and Crime*, the second volume of "English Studies in Criminal Science," to be published shortly by Macmillans. Most of the cases come from the police courts, but a large number are referred by medical practitioners, other psychological clinics, and philanthropic societies. The Institute has had to contend with many obstacles. During the "blitz" a time bomb put the clinic out of action for several weeks and ultimately forced it to move; all the juvenile courts but one closed for a period; war work made it extremely difficult for probationers to attend for treatment during the day; and many of the most active members of the staff went to the war. The work has, however, been continued. Each patient is seen as soon as possible after referment, by a psychiatric social worker, a medical psychologist, an educational psychologist, and a physician—also, if necessary, by another psychiatrist, a vocational guidance officer, and a variety of organic specialists. The director co-ordinates the various findings and gives his provisional diagnosis in non-technical language for the court or whoever else has referred the patient. He keeps constantly in mind not only the difficulty magistrates may have in giving expression to the essentially clinical findings of the Institute, but also the practical difficulties court officials may encounter when seeking to administer court decisions. The patient's need of psychological treatment may conflict with the need for segregation or close supervision; the patient may require psychological treatment and at the same time special employment which he cannot get near the clinic. Many of these difficulties could be overcome by the provision of hostels under the Institute's control. The ultimate disposal of the patient is a matter for the court, and even if the court acts on the recommendation of the Institute treatment may be prevented by social or domestic obstacles. In 1940 and 1941 a little over half the new cases were recommended treatment, but hardly one-third actually received it. Nevertheless, each year an increasing number of delinquents are put on probation with the condition that they undergo psychological treatment. The number of school children sent to the clinic has grown apace, many of them having been returned from reception areas as "unbilletable." They have mostly been placed in new or more suitable foster homes, preferably within reach of a child-guidance clinic. Much of the actual work of disposal is done by the psychiatric social worker, Miss G. M. Wilcox. This work has real therapeutic value, and if staff permitted could be amplified in almost every direction. The figures for results show a recovery rate of about one in ten and an "improved" rate of about two-fifths of those discharged, but the number of discharges through circumstances outside the control of the clinic is very high.

Taking everything into account, the Institute's work is clearly justified and admirable. Dr. Glover declares that it is urgently necessary to enlarge the technical and administrative staff. Apart from that, the usefulness of the Institute would be greatly increased, he says, by a variety of extensions of activity: the provision of a suitable hostel in London, the organization of an observation centre outside London, a scheme of special staff training, research, team conferences, and seminars for magistrates and clerks. All this, however, requires money and extensive publicity. The Institute finds it harder to achieve a sound economic basis than to overcome the difficulties of its work. Reliance on voluntary contributions now limits its usefulness, and the time has come when the contribution it is making to society should be recognized by an adequate grant from public funds.

THE PHARMACEUTICAL SOCIETY'S COLLEGE

The Pharmaceutical Society has published a report of research work carried out in its College during the period January, 1942, to June, 1943. As in other research institutions the staff and the facilities for investigation have been seriously diminished by the war, but nevertheless the report indicates that much useful work continues.

Perhaps the most interesting development from the medical point of view concerns the hormone of the suprarenal cortex. Dr. Marthe Vogt, in the department of pharmacology, has succeeded in demonstrating the presence of cortical hormone in blood taken from the dog's suprarenal vein. She measures the amount of hormone in blood by its power to prolong the life of young adrenalectomized rats exposed to low temperature, the prolongation being proportional to the amount present. Dr. Vogt finds the hormone in blood from the suprarenal vein, but not in arterial blood or in blood from the right side of the heart. The amount of hormone issuing from the gland is large. One millilitre of a commercial extract of suprarenal cortex contains the activity present in 75 g. gland, yet the average output of hormone from one dog's suprarenal gland per minute per kg. of body weight was equivalent to 0.6 g. gland. Assuming a dog of 10 kg. with two suprarenal glands, this means that a dog liberates in its blood activity equal to 1 millilitre of commercial extract in so short a period as 6 minutes. It is not a matter for surprise, therefore, that clinicians find cortical extract to be weak or transitory in effect. This work opens up a new approach to the study of the cortical hormone which promises to be extremely fruitful, and the Pharmaceutical Society is to be congratulated on this important development. Another investigation of much technical difficulty carried out by Dr. Vogt concerned the pathway of the impulses which lead to ovulation in the rabbit. The rabbit ovulates within a few hours after copulation, and ovulation is due to a secretion from the anterior lobe. What is the path of the nervous impulses set up by the act of copulation which cause the discharge of this secretion? Earlier work showed that the sympathetic is not involved. Experiments in which the greater superficial petrosal nerve was destroyed on both sides have now been carried out and have shown that this channel is not involved either. Probably, therefore, the anterior lobe is innervated, like the posterior lobe, by way of the supra-optico-hypophysial tract.

In the department of pharmaceutical chemistry further studies on acridine compounds have been made under Dr. W. H. Linnell's direction, and a number of chloro-derivatives of amino-acridines have been prepared for the first time. They were, however, less active as bactericidal agents than the amino-acridines from which they were prepared. Work has also been done on isomers of stilboestrol, and on derivatives of chlorocresol in the hope of finding a powerful water-soluble disinfectant. Hand in hand with this work the department of pharmaceutics under Mr. H. Berry has investigated the variation in the bactericidal value of lysol according to the soap used to dissolve it.

We much regret to announce the death of Sir Cuthbert Wallace, Bart., K.C.M.G., C.B., former President of the Royal College of Surgeons of England and consulting surgeon to St. Thomas's Hospital.

RESEARCH AND GENERAL PRACTICE

THE END-RESULTS OF TREATMENT

BY

C. E. S. FLEMMING, M.R.C.S.

On all sides we are being told that, in order to improve the country's medical services, medical research should be greatly increased and advanced. Subsidized by the Government, this would demand buildings, equipment, specially qualified investigators, all at a considerable cost. There is, however, possible another form of research, requiring none of these adjuncts, only approval, keenness, aptitude, and opportunity. It is an intensive inquiry into subjects which general practitioners have peculiar opportunities for investigating, and it could be undertaken by them in conjunction with their everyday practice. The work would not, of course, be in any way compulsory or a duty; just another facet in the many-sided outlook of a doctor's life, an outlook that has been casually used by most of them, but not methodically or persistently—the worrying out of problems that occur almost daily. It is a desire for a further and more complete knowledge about much that confronts the practitioner, which though latent in all his work has not been generally recognized as coming definitely within the ambit of his practice.

A form of research that must of necessity be observational is apt to be depreciated as not being truly scientific, yet it has in the past yielded results very valuable from the clinical point of view. As a study it must develop naturally and by degrees, fostered by a doctor's desire, with the encouragement, inspiration, and assistance of teachers, hospitals, laboratory workers, and others.

The Patient at Home

When a doctor starts practice he finds it difficult to recognize his patient as the same that he knew in the ward in charge of a nurse. He finds him and his family living under conditions he really knew little of—quite a new problem. He wonders whether the treatment he has seen succeed in the ward can be properly and successfully carried out in the patient's home. He begins to doubt, wants to know more of the condition that may influence his treatment, the chance of directions given in regard to rest, quiet, diet, and so on being properly carried out. He wants to know not only all the factors of the experiment which he considers every treatment to be, but also the result—the real tested result—of the experiment.

There must be many in like perplexity—men willing and with the aptitude to make inquiries and evaluate the results. For it is the family doctor more than any other who has the opportunity not only of seeing the very beginning of disease and what led to it but also of proving the real value, the end-result of treatment, and who, living as he does in close contact with his patients, is most likely to deplore the too-frequent failures of treatment and want to know the reason for this lack of success.

Need for Purposeful Search

We do not want mere collectors of information, but men with a purpose in their inquiry, to synthesize teaching and hospital practice with private practice and explain unexpected and unsatisfactory results of treatment—the impreciseness of such research may offend the sensibilities of the expert researcher, but to call it an "inquiry into" would be too reminiscent of a "Committee of Inquiry," which is the last thing wanted.

There must be, in the profession, may men of original mind thinking at times of the rightness of what they once doubted, now that they are free of the dominating influence of authority, wanting to prove it right or wrong, wondering whether their garden may not have grown too many useless plants for want of deeper digging when they could be thrown out, making room for something better, of more real value.

The younger men with unfaded aspirations and ideals will be the most likely to realize the need for more intensive inquiry as to the real value of their daily work, and among these we may fairly look for original researchers. Their opportunities, if available, would be great—men with the mental capacity and aptitude who would, if they could, devote more time to so fascinating a study, but they have too often been prevented by the rush of work necessary to make a living. Some have, in spite of all, succeeded. Such a one was that great example Sir James Mackenzie, the general practitioner whose original clinical research was of value without measure. He is described by a biographer, Sir Thomas Lewis, as "an exact observer, with accurate deductions, a deep-rooted distrust of authoritative statement, originality of mind, determined in purpose, a real investigator"—a fine ideal for the humblest researcher.

Appraisement of Failures and Fashions

Among the many subjects not only suitable but asking for investigation by the family doctor one may well put the results of treatment, especially the failures, as they are not so freely proclaimed, and it is necessary to examine them because if any sort of treatment is found to be useless it should be discarded, for so long as it is available or made use of, it prevents search for the really effective. The warning of a wrong path may save trouble or even disaster. It is the family doctor who has the most likely opportunities of observing the effectiveness or ineffectiveness of treatment, and it is the ultimate results that we want to know, because what seems to be early success may yet end in failure. With a new carburettor in your car you are not satisfied with a trial run on the level road: you want to test it up hill and under all sorts of conditions, its effect on fuel consumption and speed.

Inquiry into the results of therapeutic agents requires much care, and detachment from empirical, unproved, but fashionable agents. Under "treatment" should be included the important but as yet undetermined position of psychotherapy in adults, a field clearly for the observation and criticism of the family doctor, who can probably best estimate its ultimate value in actual practice. Treatment by the surgeon we assume may be readily appraised, probably so generally; but here again fashion or custom, or plausible advocacy, has sometimes overstated the case and prejudiced some such practice as the fixing of movable kidneys, excising feet of colon, for conditions which would not now be thought to require it, and, in a somewhat different category, the numerous cases of gastrectomy and gastro-enterostomy. These and other questions of surgical treatment, some too recent to-day for fair criticism, might with advantage to all be the subject of general practitioner inquiry as to not only ultimate failure but later unwanted and unexpected after-effects, or even harm.

A Wide Field for Inquiry

This list of possible matters for inquiry as to their influence on the result of treatment is getting too long, so there can only be mentioned old age, heredity, economic and domestic and social conditions, housing, with all of which the general practitioner in particular is concerned, and the import of which, as affecting treatment, he has such a special opportunity of ascertaining. The doctor meditates on all these things, but has no time, if he has the incentive, to carry his meditations a stage further, though he probably compares the findings of actual practice with his textbooks, and attempts to draw conclusions as to the reality of "cause and effect."

These suggestions are merely tentative. Research to be of real use and effective will need to be more methodical. One can contemplate a doctor, when he has time, carrying in his pocket a small notebook, entitled "Clinical Research," in which he will note when he comes across a case of failed treatment: The case; the remedy, medical or surgical; how applied, under what conditions and surroundings; failure, immediate or remote; the reason; the lesson. For want of time this would be impossible under existing conditions of practice.

Although such research as here proposed must be individualistic, it would be better that it should be by groups of congenial workers, for there would have to be considerable numbers of separate observations, and the comparison of findings by the different members of a group would help to suggest errors and new points of observation. Eventually these might be not masses of records but collective opinions; and

other groups investigating the same subjects might, with the assistance of expert researchers, integrate their deductions as to causes and results, opinions, new outlooks, new ideas, and, better still if one could be found, the expert researcher might give advice as to the method of inquiry.

The suggested list of subjects for inquiry is merely intended as a reminding note to those who have been so long and are still striving so hard for success in treatment in spite of disheartening conditions, that still more striving will yet be demanded in their endeavour to find reality.

The Day's Work, and Beyond

If even this simple form of research is to be undertaken it can only be done if the doctor has time to do all his work deliberately; anything less than this means that whatever his duties, whatever his pay, whatever system he works under, the public will not, cannot, be receiving the best possible medical service. If the public realized how unsatisfactory some treatment is from the doctor's point of view they would not remain so complacent and satisfied with what they are getting as they now are.

A general increase of research into the results of practice might increase the quality but not the quantity of the general practitioner's work. Some diversion from routine is wanted to help him to look beyond the day's work, which has been carried on under such serious difficulties, with little encouragement, often disillusion and disappointment. He wants something to encourage and help him to think originally, independent of fads and fashions, of patients and employers, some release from drudgery. Temporary relief comes to some by outside hobbies, but something within the sphere of his profession may add zest to his everyday round—may give a wider interest within his work for the better enjoyment of his professional life and for the benefit of his patients and of medicine.

The outcome of this should be of some interest or even value to specialists and consultants as well as other practitioners. It is a long view of what might be done, an idea that it is hoped others much more fitted may approve and help to develop.

SMOKE CONTROL IN GREATER LONDON

Representatives of 67 boroughs and other municipal authorities, members of the Greater London Advisory Council for Smoke Abatement, met at the House of Commons on May 8 to consider the reduction of smoke in post-war London.

The conference was opened by the Minister of Health, who said that great areas of London would not look as they do if it were not for the smoke of the past and the present. He reminded the conference that the Government had not been inactive. Between 1919 and 1923 there was an improvement of about 50% in the deposits dropped on London. Then there was a stationary period and some deterioration, but between 1935 and 1939 there was again an improvement. He was very glad to find this revival of activity on the part of both that organization and the National Smoke Abatement Society and the realization of the fact that this was now the time to move. He hoped that their campaigns of education would be successful. He would be glad to do what he could in the field of research and in collaboration with the Ministry of Works and the right sort of standardization. In regard to post-war housing they had to face a limited supply of naturally smokeless fuels and a relatively small supply of carbonized fuel. There were also considerable difficulties now in regard to the better cleaning of coal. The direction in which one hoped for progress was in the manufacture of a really satisfactory improved grate which would burn raw coal more completely and would also burn smokeless fuels satisfactorily. There was no escaping the fact that the British public liked an open fire, and what they had to achieve was a fire which would be equally attractive, was economic, and would not need continuous watching. From all the expert opinion he could get it would not seem that research in this direction had yet reached finality. The departments concerned were very interested in the matter, and there was every reason why they should be because the loss of all kinds due to smoke was very great indeed. The building in which they were meeting had suffered terribly from atmospheric pollution.

The Minister continued that his Ministry, together with the Ministry of Works and the Ministry of Fuel and Power, were agreed that there should be efficient domestic heating appliances and practical methods of smoke prevention. During the summer the Ministry of Works would issue a housing manual in which the latest available knowledge on the subject would be given. He was anxious to do all he could to avoid smoke in the new suburbs and prevent the continuous spoiling of the centre of our cities.

SCOTTISH SCIENTIFIC ADVISORY COMMITTEE

The terms of reference of the Scottish Scientific Advisory Committee have been revised and are now as follows: "To advise the Secretary of State on the application of the results of scientific research to public health administration and to promote medical investigations designed to assist the Secretary of State in the discharge of his responsibilities for the health services in Scotland."

Membership of the committee has been widened in the interests of medicine generally and includes: Sir John Orr (chairman), Prof. D. Cappell, Prof. F. A. E. Crew, Prof. E. W. H. Cruickshank, Prof. D. K. Henderson, Prof. J. Hendry, Sir A. S. M. Macgregor, Prof. T. J. Mackie, Prof. J. W. McNee, Prof. C. McNeil, and Prof. Noah Morris. Dr. I. N. Sutherland of the Department of Health for Scotland is medical secretary. Normally the appointment will be for four years, but to provide for rotation five of the members now appointed will retire after two years. The chairman of the Medical Advisory Committee (Sir John Fraser) and the secretary of the M.R.C. (Sir Edward Mellanby) are *ex-officio* members of the committee but are not subject to the rules of retirement.

One of the new committee's first tasks will be an investigation into the causes of infant deaths from infections. In making this announcement Mr. Tom Johnston recalled that the reports of the original committee, which was due to retire in 1940 but was kept in being because of the war, on the Emergency Bacteriology Service and the Blood Transfusion Service paved the way for setting up services that had worked smoothly and efficiently. The results of an investigation into the health and working experience of 1,000 Scottish men and women who had been boarded out of the Forces were incorporated in the Department of Health's booklet *Experiments in Social Medicine*, while an earlier report on maternal mortality (in 1935) formed the basis of the Scottish Maternity Services Act, 1937. It was likely, he said, that the subject of mental deficiency might be referred to the committee for inquiry and investigation later.

Medico-Legal

A PENSION FOR TUBERCULOSIS

Originally workmen's compensation was intended to be payable only when a workman suffered injury or death by accident, but quite early in the history of the Acts the House of Lords held[1] that anthrax was an accident causing injury. Lord Halsbury, Lord Chancellor, said: "When some affection of our physical frame is in any way induced by an accident, we must be on our guard that we are not misled by medical phrases to alter the proper application of the phrase 'accident causing injury,' because the injury inflicted by accident sets up a condition of things which medical men describe as disease." The same principle was recently applied in construing another Act.

A policeman was discharged from the City of London Police Force for pulmonary tuberculosis, and applied for a special pension for life under the Police Pensions Act, 1921. This provides that every member of a police force incapacitated by infirmity of mind or body occasioned by an injury received in the execution of his duty without his own default shall be entitled to a pension. The police authority, the Common Council, would not allow him a pension, but quarter sessions overruled it. The Council appealed to the Divisional Court, submitting that tuberculosis was not an injury under the Act, and that there was no evidence that the policeman had contracted it in the execution of his duty. The court[2] unanimously found in his favour, and Mr. Justice Humphreys said he was not aware of any legal principle or canon of construction which should prevent tuberculosis from being described as an injury occasioning infirmity of body. When the courts disallow claims of this kind for workmen's compensation, the reason is not the absence of proved injury but the failure to identify any event which could, however loosely, be called an accident. Under the Police Pensions Act there is no need to prove an accident; the injury is sufficient, and the court were quite clear that the tuberculosis was an injury. On the question of fact, the learned judge admitted it would probably be impossible to establish by evidence the day, week, or even month during which the infection of the lung occurred. The court, however, was not required to decide the issue of fact, but merely to be satisfied that quarter sessions had had some evidence on which they could conclude that the injury had occurred in the execution of the man's

[1] Brintons v. Turvey, 1905, A.C. 230.
[2] Garvin v. Police Authority for the City of London, (1944) 1 All E.R. 378.

duty. Where it is shown that the conditions of service during the critical period were such as to cause unusual mental and bodily strain which, acting upon a frame ordinarily healthy but at the time enfeebled by long hours of duty, frequent wettings, and such hardships, rendered it more liable than usual to infection, the judge thought the injury might be described as the direct result of the duty and therefore suffered in its execution.

Reports of Societies

MILITARY ORTHOPAEDICS

Of special interest at the spring meeting of the British Orthopaedic Association, which was held at Leeds on May 12 and 13 under the presidency of Mr. St. J. D. BUXTON, were several short papers on orthopaedics in military centres.

Cartilage Operations and Rehabilitation

Major R. H. METCALFE, speaking on the indications for and results of cartilage operations, said he had studied two large series of cases in two consecutive years (1942, 1943) in the same military hospital. In the first year 600 knee-cartilage cases were seen in the out-patient department; 100 of these patients were admitted to the wards, and 60 of the 100 were operated upon. In the second year 800 cases were seen, 170 were admitted, and there were 100 operations. A follow-up showed that during the first year the average time off duty for those who were operated upon was nine weeks; their final grades were: A 60%, B 28%, C 8%, E 4%. The commonest cause of a bad result was abnormal antero-posterior mobility, which was not, in the majority of cases, the result of operation; other causes were osteochondritis and osteo-arthritis. The first year's results suggested that rehabilitation had been too vigorous and tended to arouse latent anxiety. Patients were more carefully selected for operation in 1943, and given a shorter period off duty and less vigorous rehabilitation. By getting the soldier back to his unit within the permitted period of three weeks before being "Y" listed the best results were obtained. This was possible in 20% of all the cases operated upon in 1943; these men were graded: A 81%, B 14%, C 5%, and none had been discharged. For the entire 1943 series the final grades were A 71.5%, B 20.5%, C 7%, E 1%.

Fractures of the Scaphoid

Major J. STEWART, U.S. Army Medical Corps, in a paper on fracture of the carpal scaphoid, said this fracture was often undiagnosed, and he emphasized the need for multiple radiographs on different occasions in doubtful cases. Difficulties were experienced in distinguishing new from old factures and in estimating the nature of vascular changes. The end-results had been ascertained in 134 cases out of a series of 205 treated within 15 months; of these 134, 129 had been treated in plaster alone, of which 127 had full union and mobility, freedom from pain, full grip, and had returned to full duty. The procedure was immobilization in plaster-of-Paris, extending from the base of the thumb-nail, the proximal palmar crease, and the heads of the metacarpals behind to within one inch of the elbow-joint. The wrist was maintained in 10 to 15 degrees dorsiflexion, but with no lateral deviation. During the application of plaster the thumb and fingers were held as though grasping a football; this allowed full mobility of the fingers afterwards and practically normal activity for the hand. Recovery after the plaster was removed was shortened (nearly four weeks). The plaster was changed every three or four weeks, and progress checked by *x* rays, care being taken to prevent movement of the wrist and thumb during these procedures. Every sprain or injury in the region of the carpal scaphoid should be considered a fracture until proved otherwise. Solid bony union in an average of eleven weeks could be expected if there were early diagnosis, accurate reduction, and adequate immobilization for a sufficient period. Loss of Army man-power due to delay in union was directly attributable to failure to observe these principles. In fractures coming late for treatment the time of recovery was prolonged, but neither vacuolation nor sclerosis at the site of fracture, provided the proximal fragment was viable, need be regarded as vitiating recovery by prolonged fixation.

March Fractures

Capt. E. WYNNE-JONES found that the incidence of march fracture of the metatarsal bones in Army recruits was 2.8%, and occurred towards the end of training in men generally of poor physique and posture with long narrow feet, and where there was mechanical overloading of the metatarsals. By a more careful gradation of route marches the incidence of these had been reduced to 0.91%. While immobilization in plaster gave satisfactory results, a simpler and more time-saving method was a metatarsal pad applied to the foot with adhesive strapping. Modified training (everything except roadwork, running, jumping, and obstacle-course work) was started immediately and continued until all tenderness had disappeared (average 21 days).

Two other papers dealt with operative techniques. Lieut.-Col. GLEN SPURLING of the U.S. Army Medical Corps described the use of finely drawn tantalum wire for nerve suture, and of tantalum foil as an enclosing sheath at the line of junction so as to prevent adhesions. This metal, besides being malleable and having tensile strength, was completely inert to living tissues. Capt. D. KILLORAN, U.S. Army Medical Corps, described a method of coagulum contact skin grafting similar to that reported by Sano of Philadelphia, but with modifications necessitated by lack of heparin. From oxalated blood, plasma and a leucocyte cream were prepared; the former is applied to recipient areas and the latter painted on to the deep surface of the graft. This procedure was adopted in battle casualties a few days after initial débridement and where there were no other means of closing a large skin defect. The limbs were then immobilized, but pressure dressings were not applied. Lieut.-Col. BRICKER thought there was some doubt as to how far such a coagulum glue could replace suture and pressure fixation of the graft; certainly it was a useful adjunct. He said that grafts should not be washed in saline before application, as such procedure removed natural adhesive.

Miscellaneous Papers

Prof. A. DURWOOD described his researches into the blood supply of nerves; these confirmed the importance of the longitudinally disposed intraneural vessels, which freely anastomosed and conveyed blood for long distances within nerves, even after division of the many small vasa nervorum which enter laterally. Discussing the characteristic histology of benign giant-celled synovioma of tendon sheaths Prof. M. J. STEWART said that the intracellular presence of haemosiderin or lipoids was merely a demonstration of phagocytosis by the polymorphous connective-tissue cells of which the tumour was composed. The presence of foam cells did not justify the description of certain of these tumours as "xanthomas"; in fact the "xanthic" reaction wherever seen was a local phagocytic response by connective-tissue cells to the chemical conditions of their surroundings. Dr. A. S. JOHNSTONE reviewed the work of Batson of Philadelphia on the vertebral venous system as a mechanism for the spread of metastases and his own investigations along the same lines. He said that while there was a freer connexion than was commonly recognized between the veins of the prostate and those of the vertebral column, and while the vertebral venous system might provide a means for some of the occasional spread from this and other organs, it by no means accounted for the spread of cancer by the classical means already accepted.

Dr. J. R. NUTTALL described the results of treatment of osteo-arthritis by deep *x*-ray therapy in 259 cases, 164 of which had been followed up. There had been no particular selection of cases for treatment. He found 17 patients who had had complete relief of pain three months after treatment ended, 90 had incomplete relief, and 57 received no benefit at all. His impression was that the best results were obtained in smaller joints. Mr. L. N. PYRAH reviewed a series of ten cases of generalized osteitis fibrosa, six of which had been admitted for spontaneous fracture. All of the patients were found to have parathyroid tumours, which were removed. In discussing blood calcium in such cases Mr. Pyrah emphasized that reliance was placed entirely upon blood calcium and phosphorus estimation,

except in one case in which calcium-balance experiments had been carried out. The blood calcium figure varied from 12.5 to 20 mg. per 100 c.cm. of blood, and the blood phosphorus in every case was low—usually 2 to 2.5 mg. The plasma phosphatase was raised in every case.

Mr. R. BROOMHEAD and his colleagues demonstrated a series of orthopaedic cases, including a group of people who had been operated upon for intractable metatarsalgia. At the operation the shaft and head of the metatarsal was denuded, and, after being osteotomized near its base, was rotated through 180 degrees.

The Indian Association for the Cultivation of Science recently founded a gold medal in memory of Dr. Bimala Churn Law. In accordance with the terms of the endowment the medal "is to be bestowed on a person who, in the opinion of the committee of management, has made conspicuously important contributions to science, including medicine." The committee of management, under the chairmanship of the president of the association, Sir U. N. Brahmachari, decided in November last to make the first award of the medal to Sir Henry Dale, President of the Royal Society, by whom the medal has now been safely received. At a meeting of the Association for the Cultivation of Science on Feb. 4 Prof. A. V. Hill, biological secretary of the Royal Society, was awarded the Joykissen Mookerjee Gold Medal for 1944, and delivered an address.

The Easter Holiday course of the Ling Physical Education Association was attended by over 500 teachers, inspectors, and others, and the subjects discussed included health education in schools and clubs and social science in the physical training colleges, while there were lecture-demonstrations on rehabilitation of the injured, rehabilitation of children in occupied countries, and ante- and post-natal exercises. Mr. R. Watson-Jones, speaking on developments in orthopaedics, said that years ago it was thought sufficient to mend broken limbs; later re-education in muscular control was found equally necessary, and physiotherapy came into its own; now the psychological factor was considered of equal importance. He reminded his listeners of Plato's policy that there should be physicians for the body and physicians for the mind; they were indivisible. Lieut.-Col. J. W. T. Patterson described the Research Board for the Correlation of Medical Science and Physical Education, which, founded last year under the chairmanship of Brigadier Frank Howitt, was at work on a report on the co-ordination of the work of doctors and physical educationists in maternity and child welfare, education and recreation, the Services, and industry; it had also appointed a special scientific advisory committee, under the chairmanship of Sir Farquhar Buzzard, to collate and assess scientific research on the subject which had already been made and to initiate further research.

Correspondence

Infective Hepatitis

SIR,—In a recent account of infective hepatitis (Cameron, J. D. S., *Quart. J. Med.*, 1943, **12**, 47, 193) the author, referring to myself, writes: "He still considers that there are two types, catarrhal and infective jaundice." That statement is incorrect. In the article of mine to which he refers (Cullinan, E. R., *Proc. roy. Soc. Med.*, 1939, **32**, 933) I said I did not believe that there was convincing evidence that common infective jaundice, as seen in Britain, had two separate pathologies, and that if the two conditions did exist I regarded them as clinically indistinguishable from each other. Later experience in the Middle East and East Africa has strengthened and widened that belief. My reason for writing this letter is not to cavil at an obvious misprint—the author did not have the opportunity to read the proofs—but because occasional attempts to differentiate clinically what is now called infective hepatitis into two diseases are again causing confusion. For example, an article has appeared in the German press (Mancke, R., and Siede, W., *Münch med. Wschr.*, Nov. 6, 1942, No. 45) entitled (translated) "The Differential Diagnosis of Catarrhal Jaundice and Epidemic Hepatitis." The authors consider that if all the symptoms are taken together these two diseases can be distinguished clinically from each other. Briefly, their distinction is as follows:

Epidemic Hepatitis.—Two-phasic disease. The first stage is a heavy general infection with fever lasting 4 to 6 days. During this stage the liver is enlarged and very sensitive to pressure. The spleen may be enlarged. Urobilin is increased in the urine. Vomiting is a regular feature. Obstinate constipation is common. After about six days, often with great suddenness, jaundice appears. Fever settles by lysis. The patient feels much better. The liver may stay enlarged, though no longer tender.

Catarrhal Jaundice.—No clear-cut dual phase. May be a preliminary gastro-enteritis. No fever. Patient does not feel ill. Jaundice often the first abnormality noticed. Liver not spontaneously tender or painful. Vomiting very rare in the initial stage. Diarrhoea common.

I believe that this distinction is artificial and impossible to make. During an epidemic of infective hepatitis, although the first group of symptoms is the more common, not only does each group of symptoms appear in different patients but symptoms from both groups are often seen in the same patient. This is illustrated by the following brief case histories of eleven consecutive patients in an officers' mess in the Middle East. The number of officers in the mess was thirty-five. All the patients fell ill during a period of two months. It is not reasonably posssible that they were suffering from different diseases.

(1) Loss of appetite. Felt slack. No vomiting. No fever. Jaundice on 7th day. Liver enlarged 3 fingerbreadths. Spleen not palpable.
(2) Loss of appetite. Felt slack. No fever. Jaundice on the 8th day. Liver enlarged 2 fbs. Spleen not palpable.
(3) Vomited one night. Continued to feel unwell, with nausea, for ten days. Then a "chill." General aches and pains and fever for two days. Loss of appetite, which persisted. Eight days later, jaundice. Liver and spleen not palpable.
(4) "Soaked to the skin." Fever for two days. Thought he had "flu." Poor appetite. Jaundice on 7th day. Liver enlarged 1 fb. Spleen just palpable.
(5) A "chill." Slight evening fever for four days. Loss of appetite after. Jaundice on 8th day.
(6) Lassitude. Complete loss of appetite. No fever. Vomited once on the 4th day. Jaundice on 9th day. Temp. 100°. Liver enlarged 2 fbs. Spleen not palpable.
(7) Dysentery. Six days later, loss of appetite. Five days after this, fever and enlargement of liver. Next day, jaundice.
(8) For four days thought to have malaria. Shivering. Slight fever. Unable to eat. Jaundice on 6th day. No enlargement or tenderness of liver. Spleen not felt.
(9) Malaise. Aching eyes. Slight fever for one day. Slight abdominal discomfort and loss of appetite persisted until 4th day, then jaundice. Liver enlarged 2 fbs. Spleen not felt.
(10) Felt ill. Shivery. Pain in back. Diarrhoea. Loss of appetite. Fever for a few days. Loss of appetite and feeling of illness persisted. Jaundice on 23rd day. Liver palpable 2 fbs. Spleen not felt.
(11) A "chill," with fever for two days. Following this, loss of appetite. Jaundice on 10th day. Liver just palpable. Spleen not felt.

Clearly no such clinical differentiation as suggested by Mancke and Siede could be made in these patients. The cause of infective hepatitis remains unknown. Recent work—epidemiological, clinical, and pathological—suggests a common disease process. Whether this will prove ultimately to be true remains to be seen, but any attempt at present to differentiate the disease by clinical data into different pathological processes is not only impossible but misleading.—I am, etc.,

E. R. CULLINAN,
Brigadier.

Fracture of the Carpal Scaphoid

SIR,—In their paper (May 20, p. 685) Robertson and Wilkins rightly stress the importance of *continuous* immobilization in the treatment of recent fractures of the carpal scaphoid—a well-established principle in the treatment of all recent fractures—and their end-results in old-standing fractures of the carpal scaphoid show, as they state, the lamentable results that may follow a missed diagnosis and/or inadequate treatment. Of their 12 cases of "established non-union which had no other treatment than prolonged immobilization [many months] the men were discharged to light duty," and but for their special value to the Service would probably have been invalided as unfit. "Most of these cases showed some degree of osteo-arthritis and disability of the wrist." Of the 12 cases which received operative treatment (3 bone graft, 2 excision of proximal fragment, 7 drilling) only 4 returned to duty. Are these the best results obtainable in old-standing cases? The authors will surely admit that these are very disappointing results.

In my experience better results can be got in old-standing cases by excision of the *whole* scaphoid, as the following cases show.

1. A joiner aged 24 fractured his scaphoid in 1915. In Nov., 1922, he was seen by me and complained of pain in the wrist after much hammering or planing. *X*-ray examination showed an ununited fracture of the scaphoid. On Dec. 6, 1922, I excised both fragments. He returned to work in six weeks and has had no trouble since.

2. A locomotive fireman aged 26 had an ununited fracture of the scaphoid of 7 or 8 years' duration. He had pain on jarring of the wrist when shovelling coal. Complete excision of the scaphoid was performed on Jan. 6, 1924. He returned to full work and has had no complaint since.

3. A tram conductor aged 32 fractured his right scaphoid on Aug. 28, 1927. He was treated in a "cock-up splint" for seven days. On Sept. 23, 1928, *x*-ray examination showed ununited fracture of the scaphoid. This man complained of pain in the wrist when punching tram tickets: this entailed constant use of the right thumb. On Sept. 26, 1928, the whole right scaphoid was removed. He returned to duty and has had no complaint since.

These three cases had been treated as sprain of the wrist, and no *x*-ray examination had been done. All showed osteo-arthritis and "cysts" in the fractured scaphoids. Two of these excised scaphoids were sent to the late D. M. Greig, and are now in the surgical museum of the Royal College of Surgeons, Edinburgh. The following characteristic remarks from Greig's letter acknowledging receipt of the specimens seem to me worth quoting: "Isn't the pain that these people suffer from not rather related to the ligaments meeting the strains at a disadvantage than to actual compression each time of the injured bone? I agree with you that excision is the proper treatment [for persistent non-union]. Rest may be good in the arly stage, but not later, and I don't think at any time massage, electrical treatment, and such eclectic rot is of the least use. It may please the patient and gratify the radiotherapist, but it has no place in practical surgery."

In conclusion I suggest that Robertson and Wilkins (and other surgeons) might consider removal of *both* fragments in cases of old-standing non-union of the carpal scaphoid. In the three cases quoted there was complete relief from pain and no appreciable loss in strength or function of the wrist.—I am, etc.,

Dundee. F. R. BROWN.

Aerial Transmission of Virus Infections

SIR,—I cannot see why there should be the least hesitation in accepting the aerial transmission of smallpox, and for that matter that of other infective diseases. Botanists tell us that they readily collect, on plates smeared with glycerin exposed on high buildings and on aeroplanes, abundant pollen grains and the spores of fungi. These objects have no flight mechanisms and must be infinitely heavier and bulkier han viruses; and, as those familiar with the effects of A.A. gunfire will be aware, what goes up must also come down. To my mind the wonder is that these viruses are not disseminated much further than clinical experience has so far demonstrated. The accurate bacteriological proof may not be accomplished for some time, though the recent demonstration of the viability, and transmission in the form of dust within a building, of streptococci and other micro-organisms may be a start in the right direction; though, where the air currents caused by sweeping and dusting are to be compared with the winds of heaven outside buildings, the areas of dissemination involved will be proportionately greater.—I am, etc.,

Witney. J. G. C. SPENCER.

Nutritional Oedema in a Vegetarian

SIR,—In his comment (May 20, p. 699) upon my article Dr. D. G. McIntosh probably has in mind the condition of acute "beriberi heart," which is associated with gross oedema and often terminates in sudden death from cardiac failure. This type of beriberi may be associated with nutritional oedema, but in my case the ordinary signs of cardiac failure were absent: there was no radiological or clinical evidence of cardiac enlargement, no venous congestion, and the blood-pressure readings were normal. There was no cyanosis, and the dyspnoea and slight tachycardia were not more than could be explained by the pleural effusions. Furthermore, there was no evidence of polyneuritis, which in some degree is always present in the cardiac type of beriberi. It is unfortunate that more detailed investigations of the circulatory efficiency were not done, such as an electrocardiogram, circulation rate, and blood volume, but these are hardly necessary in order to diagnose congestive failure. It is highly improbable that any serious cardiac lesion was present, as the infusion of several pints of plasma produced no cardiac embarrassment. It would have been dangerous to overload a failing circulation in this way, and the possibility was considered before giving the plasma.

Dr. McIntosh's remarks are apt, however, in that similar cases may be found in occupied Europe, and they may be complicated by gross vitamin deficiencies in addition to the simple hypoproteinaemia. In such cases plasma transfusion as a rapid method of restoration of the blood protein should be avoided owing to the risk of overloading the circulation.—I am, etc.,

Stafford. J. MACDONALD HOLMES.

Neurotic Battle Casualties

SIR,—Previous communications[1] from this unit have reported the value of front-line sedation, sleep treatment, emotional abreaction, and modified insulin therapy in the rehabilitation of neurotic battle casualties. On the invasion of Europe more of these casualties are bound to occur. Sedation, insulin, and emotional abreaction deal with different aspects of the neurotic battle casualty. Hitherto the clinical picture has often required the consecutive use of all these methods to combat the tension, irritability, fatigue, exhaustion, loss of weight, and amnesias, to mention some of the features of such cases. During the past year I have found that a combined technique of continuous sleep and modified insulin was safe and often a therapeutic advantage. One could treat the patient in a comprehensive way promptly and with a minimum stay in hospital. In outline, insulin is given at 7 a.m., 10 up to 50 or 60 units according to individual tolerance as described by Sargant, while sleep is maintained with the short-acting barbiturate sodium amytal for 18 to 21 hours daily. During the insulin period sleep is kept relatively light, not more than gr. 6 of sodium amytal being given in this time. If need be, emotional abreaction of traumatic incidents is conducted in the afternoon, since the patient is then in the same drowsy state as occurs with intravenous barbiturates given specifically for this purpose. The essentials are that the staff be familiar with states of hypoglycaemia and sleep, that the food and fluid intake be kept at a high level, that 2 oz. glucose be given at teatime, and glucose kept at hand for oral or intravenous use if required—though in practice the need is rare. Treatment can be maintained for 14 days or longer, but where more than 4 to 5 days is necessary the sedative must be very slowly reduced to prevent a barbiturate withdrawal fit occurring, especially if insulin is continued after the full sleep course is terminated.

This technique is reported since it may prove useful for those who have to deal with acute battle casualties which have not responded to front-line sedation.—I am, etc.,

Sutton Emergency Hospital. D. E. SANDS.

Mental Disturbance after Atebrin

SIR,—Dr. Gerrard, in his letter on the treatment of malaria (Feb. 5, p. 196), states that he encountered none of the alarming complications recorded by other writers on atebrin therapy in his investigations into this line of treatment in Hong Kong.

During the period 1939–41 I saw three cases of the so-called "atebrin psychosis" in Hong Kong. Two of these patients were young Chinese and the third was a middle-aged Dutchman who had needed periods of treatment in mental hospitals on several previous occasions. All three patients had been given 0.3 g. of atebrin intramuscularly for a fever presumed to be malaria, and all developed mental disturbance shortly after administration of the drug. The picture they presented was that of an acutely oncoming confusional state; temporal and spatial disorientation, hyperkinesis, and persistent insomnia being the outstanding features. The Dutchman was so violent that he had to be admitted to a mental hospital for 48 hours. Recovery was complete and rapid in all three cases, and seems

[1] *Lancet*, 1940, **2**, 1; 1941, **1**, 107; **2**, 212; *British Medical Journal*, 1942, **2**, 574; *War Medicine*, 1943, **4**, 577.

to be assured once the normal sleep rhythm is restored. Similar disturbances after the use of atebrin have been reported by many other observers, particularly those working in the Far East.

In view of the fact that atebrin now bids fair to replace quinine in the treatment of malaria (for the time only, let us hope) it should be emphasized that the Eastern races and those patients with a past history of mental instability may develop acute mental disturbance if given atebrin by the intramuscular route.—I am, etc.,

Famagusta, Cyprus. PAUL WILKINSON.

X-ray Examination of Service Recruits

SIR,—Dr. Bernard Leggett (May 20, p. 700), in referring to the gastro-intestinal *x*-ray examinations of Service recruits for the Ministry of Labour, questions "the value of those one or two film examinations done without prior preparation at the instance of the Ministry of Labour with negative results." I would agree with him if this were generally the case, but, having *x*-rayed Service recruits for the Ministry for four years, it is only fair to say that my experience is totally different. Neither the Ministry nor their medical boards have ever suggested the number of films I should use in any examination, nor have I come across an instance of a medical board failing to give a recruit proper instructions for preparation before the examination. If an inadequate number of films is used, as Dr. Leggett states, and the medical boards are not informed as to the preparation required it is the fault of the individual radiologist and not of the Ministry of Labour.—I am, etc.,

London, W.1. H. GRAHAM HODGSON.

Operation for Umbilical Hernia in Children

SIR,—It was with keen interest that I found the question of injection treatment or operation for hernia taken up by Mr. Bennett-Jones in the *Journal* of Jan. 15 (p. 78) and applied to umbilical hernia in children. While most of his statements coincide with my own ideas and experience in this matter, I cannot feel tempted by the statistics given either to advocate or to use the injection treatment in such cases myself. For children who do not show a tendency to cure otherwise I rather adopt the attitude for umbilical hernia which Mr. Bennett-Jones himself pronounces with regard to inguinal hernia. Here it certainly holds good even more that "operative treatment is so safe, with recurrence and sepsis almost unknown." It is my own idea, as much as it is Mr. Bennett-Jones's, that admission to hospital should be avoided whenever possible, and to his arguments of shortage of beds and the danger of infection I should like to add the fact, stressed and proved by Herzfeld of Edinburgh, that children never get on so well in an institution the first time after admission.

The conclusion I drew from the facts mentioned was to look upon the operation on children without admission to hospital as the method of choice. That was recommended first by Stiles, I think, and observations of large numbers of such operations without complications and with perfectly satisfactory results have been published by Herzfeld of Edinburgh and MacLennan of Glasgow. According to Michailoff it seems that in Russia, too, operating on children as out-patients was nothing unusual. Encouraged by these reports and by Schwarzmann, my senior surgeon in Vienna (now in New York), I adopted this treatment many years ago, and in 1935 I published a report based on our experience covering 10 years. Space does not permit me to go into details of technique and results here, but I should like to emphasize that the procedure is so simple and the results are so perfect that I felt justified, even in my present practice without being attached to a hospital, to do an occasional umbilical hernia in the patient's home, using the dining table (Morrison shelter) as an operating table with the district nurse assisting. There was never the slightest trouble; the results were perfect, and mother and child as happy as can be. It seems to me, therefore, that the operation for umbilical hernia in children without admission to hospital might be taken up more widely than seems to be done at present.—I am, etc.,

Gillingham, Kent. K. F. POLLACZEK.

Poisoning the Endocrine Glands

SIR,—Recent work on the influences of thiouracil on the thyroid and of alloxan on the pancreatic islets, which, as set out in your leader (April 29, p. 595), represents the action of two substances poisoning selectively the endocrine glands, recalls earlier work on the action of thallium salts, which have undoubtedly a specific poisonous influence on the endocrine system. The use of thallium as a remedy against overgrowth of hair has been more or less abandoned owing to its toxicity, which has even led to the death of a number of patients. The experimental work (which seems to have been almost forgotten and which in the light of modern endocrinology is far from being complete) suggests, however, that thallium has either a specific pluriglandular action or a selective action on the anterior pituitary lobe, with subsequent cessation of function and degeneration mainly of the thyroid gland and of the gonads. The cytological changes of the Golgi apparatus and of the mitochondria in the thyroid cells after administration of thallium acetate are those found when there is diminished thyroid secretion. The cells themselves become flattened, the colloid stains acidophil, and the basal metabolic rate diminished (Ma, Wen-Chao, and Jui-Wu, *Proc. Soc. exp. Biol.*, N.Y., 1929, **27**, 249). In rodents oestrus ceases completely, and returns one to eight weeks after discontinuation of thallium administration. No other known poison is able to produce such an action, nor do deep *x* rays have an equally prompt effect. The histological appearances of the ovaries of these animals are normal. That the inhibition of the oestrus is not due to general poisoning or to lack of ovarian reactivity but to a cessation of oestrogen production, probably through inhibition of gonadotrophic stimulation, is shown by the fact that oestrogen or gonadotrophins are able to produce an oestrogen response in animals under thallium treatment (Buschke, B. Zondek, and Berman, *Klin. Wschr.*, 1927, **15**, 683). In young rats retardation of growth, complete atrophy of the testicles, lack of sex desire, loss of hair, and cataract formation occur. Alopecia can be produced in youngsters by feeding thallium to the mother.

There seems to be no doubt that thallium is a specific endocrine poison which merits to be studied again from this point of view as to its functional and anatomical effects on the endocrine glands, especially on the pituitary, and that it is likely to be of therapeutic value once the mechanism of its action has been clarified and a suitable dosage established.—I am, etc.,

London, W.1. H. UCKO.

Service Medicine

SIR,—Recent correspondence on this subject has caused me to look up the extracts from the letter of an anonymous writer which appeared in the *Journal* of April 1. This unhappy correspondent appears to have missed all the joy and spirit of comradeship in what most of us regard as the most exciting period of our lives. Perhaps it would help him if he were to learn of the experience of one who was, until recently, a specialist in the R.A.M.C. and also a patient who owes much to the skill and care of the specialists in that corps.

When suffering from an obscure illness I was examined by five specialists in different branches of medicine. Each of these officers is a man of nation-wide reputation, and each one impressed me with his enthusiasm for his work and the sympathetic interest he took in my case. As a result of this investigation a correct diagnosis was made in a very short time, correct treatment was instituted, and, after a slow convalescence, I was restored to health. Each of these gentlemen had to fill up a form and write a report about my case, but since these forms when taken together helped to save my life or at least save me from years of ill-health I may be pardoned for regarding them as valuable documents. In addition, these forms were of importance to me when it came to assessing my pension.

Like other correspondents I have been a consultant and a member of the staff of a teaching hospital for several years, and, like them, I agree that the soldier gets better treatment than does the civilian, even in peacetime.

Except for about four months, when, by reason of ill-health, I was given a light job, I found that I had rather more work to do in the Army than I had in civilian life. I found more cases of special clinical interest to me in a military hospital than I have ever found in the same period in my civilian hospital. The team spirit is more in evidence in the Army than elsewhere, and it is a great help to a physician to be able to have the opinion of any other specialist without wondering whether it is fair to the patient to incur the additional expense. My civilian colleagues are invariably helpful and co-operative, but it is necessary to remember that the time they give to the hospital patient is time taken from their private and remunerative work.

There are some misfits in the Army Medical Service, and it is not always possible at the time to see the reason for or the wisdom of some of the orders we receive. Nevertheless I am convinced that the A.M.S. is directed efficiently, and that the work of that department is characterized by wisdom and foresight, and, so far as individual officers are concerned, with great personal kindliness. I am afraid the views of the anonymous correspondent are held by many who have no experience of the medical services in the present war. It is necessary, therefore, that every effort be made to place the true facts before the medical profession.—I am, etc.,

Belfast. T. A. KEAN, Major, late R.A.M.C.

SIR,—With regard to the correspondence on this subject one is struck by the high Service ranks of those who have written to support the Service point of view—brigadier, air commodore, squadron leader. I have no doubt whatsoever that all that they say is quite right just as I am sure that the original letter giving rise to this correspondence is also quite true from the writer's point of view. In any Service so much depends on the individual's ability to fit in, and many civilians just cannot get used to compulsory form-filling and so on. Many doctors keep no written records at all, and hate and resent supervision—possibly because they fear it. We cannot all be men of the calibre of J. J. Conybeare, under whose guidance I studied medicine some twenty-two years ago.

The main purpose of this letter, however, is to bring to notice the point of view of Service patients. It has been my own experience, and that of almost all my colleagues with whom I have spoken, that our patients in the Services do not like the medical arrangements and do not trust the Service doctor. Again and again I have had personnel from all three Services come to me on leave to unburden themselves of some worry they feel they cannot take to the Service doctor. They know they will get excellent treatment if they are seriously ill and go into hospital, but they cannot obtain that comfort and support they look for from their doctors in "civvy street." This even applies to men who have been decorated for bravery on the field. They seem to think the unit doctor is too young and has no personal interest in them.—I am, etc.,

Bristol. J. L. FAULL.

Expectation of Life in Urinary Tuberculosis

SIR,—To corroborate the memorandum by the late Mr. Hurry Fenwick (May 6, p. 621) and the letter of Mr. Victor Bonney (May 20, p. 700) on occasional cases of longevity after such infection I can record one case that was even more fortunate. Early in 1907 a lady aged 53 had considerable distress in micturition. I found that she had tubercle bacilli in purulent urine and an enlarged right kidney. Mr. Hurry Fenwick made a cystoscopic examination and diagnosed the illness as one of tuberculous right kidney. He advised me to try tuberculin injections. This I did in small doses, and combined them with prolonged rest and a sensible fresh-air treatment. Later on Sir Almroth Wright saw her and agreed with the diagnosis and treatment. The urine gradually cleared of pus and tubercle bacilli; she was under treatment for three years. The right kidney remained large and micturition was at times frequent. This woman fully regained her good health and activity; there were no relapses; she died in January, 1940, aged 86, of senile aortic disease. Her infection had been almost certainly acquired from a "bronchitic" cook, whom I found to be expectorating tubercle bacilli in abundance. These rare cases of great natural resistance have, of course, no bearing on the modern surgical treatment of tuberculosis of the kidney.—I am, etc.,

Hastings. HARRY GABB.

Ophthalmologist and Optician

SIR,—In a previous letter (May 6, p. 635) on the question of ophthalmic surgeon and optician I expressed a doubt as to whether the sight-testing opticians would co-operate as medical auxiliaries in a national eye scheme. The letter which you have published from Mr. W. B. Barker (May 20, p. 702) shows this to be the case, but it also proves a far more important point. By his statement that for an optician to undergo medical training would be "as wasteful and unnecessary a basis for optical practice as it would be for dental practice" he tells us that he has no conception at all of the organ with which he is dealing. An aching tooth or dental sepsis is essentially a local condition, but an aching eye or a tired eye may be a danger signal of general disease, and these signs may be transient.

The eyes are the windows of the body, and the very earliest signs and symptoms of diseases of the nervous system, the cardiovascular system, etc., may present themselves in the eye first. If the patient with papilloedema or diplopia is treated with spectacles or orthoptics the presence of an intracranial tumour may be unsuspected until it is too late. The neurosurgeon, aided by radiology and electro-encephalography, can locate and remove an intracranial neoplasm if he gets it in time, and it must be remembered that intracranial tumours are not rare, but are only second in incidence to the uterine new growths. A neoplasm may develop in the eye itself at any age, and failure to recognize it may cost the patient his life. We have all seen, far too often, the patients with primary glaucomas who are treated with spectacles until but one small portion of one visual field remains. It will be seen, therefore, that the eyes, of which we have only two, and the teeth, of which we have 32, can in no way be compared, and yet no dental surgeon would refer to his course in anatomy and general pathology as a waste of time. Finally, dentures prove a very efficient substitute for our teeth, but an artificial eye is useless as an organ of sight.—I am, etc.,

Camberley. LESLIE HARTLEY.

SIR,—Possessing no knowledge of optics practitioners cannot decide whether sight-testing is the concern of medicine or can be undertaken by opticians. In forming a judgment it is essential to recognize that this testing is merely a measurement of the eye, and, except that the technique is more involved, is akin to other bodily measurements. Where it differs is that the symptoms of an eye defect may simulate disease, and an eye must be pronounced healthy before glasses are given. This contention the optician has accepted for at least two decades, and he maintains that his training enables him to fulfil his obligation in that it comprises the same methods of investigation that oculists universally use.

The means of determining health, applicable to every organ, constitute a study of symptoms, the investigation of functions, and, in the eye, an external and internal inspection. In investigating function the optician not only considers direct vision, but the fields for colour and white are taken when these procedures are indicated. As the luminous ophthalmoscope makes the interior of the eye almost as visible as is a face, the overlooking of a lesion is inexcusable.

But for a service to be efficient it must be more than competent; it must be readily available and at a cost that is not disproportionate to the service that is rendered. To recruit "sight-testers" solely from medical men would so curtail facilities that, rather than suffer the inconvenience and expense, patients would gradually resort to selecting their glasses themselves at a general store as some do to-day. Further, a medical training is too valuable to be wasted on measuring, and many, like myself, are convinced that not only is it in the interest of medicine to delegate sight-testing but it is also to the benefit of the community that the hand which fits the frame should be responsible for prescribing the lens.—I am, etc.,

London, W.1. JAMES FORREST.

Work of Women Doctors: A Survey

SIR,—The Medical Women's Federation considers it important that accurate and up-to-date information concerning the work of medical women should be obtained—e.g., the number who give up medical work temporarily or permanently after qualification, etc. The Federation is therefore undertaking a survey of the work of women doctors and a questionary is being sent to every woman by a representative from each medical school in Great Britain and Northern Ireland which admits women students now or has done so in the past.

May I, through your columns, urge all medical women, whether *engaged in medical work or not*, to complete and return the questionary without delay? It is possible that some may not receive the questionary owing to change of name or address. Will they please apply to the office of the Federation (73, Bourne Way, Hayes, Bromley, Kent) asking to be put in touch with their medical school representative in order that a questionary can be sent to them?

In the cases of graduates from the London (R.F.H.) School of Medicine for Women, the inquiry is being conducted by Prof. Lucas Keene. As regards all other medical schools the dean's office is not concerned in this matter and has no information to give about it.

This request does not apply to women who qualified from University College Hospital Medical School (University of London) or from Birmingham Medical School, as the information from graduates in these schools has already been obtained.
—I am, etc.,

JANET K. AITKEN,
President, Medical Women's Federation.

Obituary

By the death in his 91st year of GEORGE HOLLIES of Wellington, Salop, the profession in Shropshire has lost its oldest and the B.M.A. one of its oldest members. Dr. Hollies began his professional life in a way not uncommon in his young days but almost unknown at the present time by becoming a pupil to a well-known practitioner in the town of Halesowen, Worcestershire. After a period of pupillage, when he was contemplating entry to a medical school, his father died and left him practically stranded. But this did not deter him; he proceeded to earn his living by assistantships, not very well paid in those days, and saved money for his fees. His last assistantship was in Cambridge, and during this period he entered as an undergraduate, and eventually took the B.A. degree. He completed his curriculum at the London Hospital and in Birmingham, and qualified as L.R.C.P., L.R.C.S.Ed., and subsequently graduated M.B., B.Ch. of Trinity College, Dublin. Offered a partnership by the late Dr. Steedman of Wellington, Salop, he settled down in that town, and for many years was the leading practitioner there, gaining the respect of all and the affection of large numbers. He was a member of the B.M.A. for many years, a member of the Shropshire and Mid-Wales Branch Council, and president of the Branch. He concerned himself with all the public activities of his town and county. He was a J.P., the first chairman of the urban district council, an alderman of the county, and chairman of its public health committee. For 40 years he was a volunteer or territorial medical officer, attaining the rank of lieut.-col. R.A.M.C.(T.) attached to the Cheshire Brigade R.F.A. In the last war he was the oldest medical officer in the Western Command, and served as S.M.O. Divisional Mounted Troops, Welsh Division, until he was invalided out in 1916. His wife died about 20 years ago, and he leaves no direct survivor, but several of his nephews are in the medical profession.

Dr. ARTHUR HENRY HOWARD HOWARD, who died at Millbrook, Plymouth, on April 20, aged 63, had practised there for a considerable time. He took the M.R.C.S., L.R.C.P. in 1909 after professional training at Charing Cross Hospital, and served there as house-surgeon. He was then medical officer for three years to the Children's Hospital at Much Hadham, Herts. During the last war he held a commission in the R.A.M.C. and was attached to No. 32 British General Hospital, Amara, after which he became officer in command of the 323rd Field Ambulance, and returned to this country to take charge of the ear department of the Clipstone Military Hospital, Notts. His first association with Sheffield, where he practised in partnership for some years, had been as casualty officer to the Royal Infirmary and anaesthetist to the Royal Hospital. At Plymouth he was medical officer and public vaccinator for St. Germans, and surgeon to the police and the post office.

The passing of Dr. ARTHUR STANLEY PARKINSON on May 2 has caused widespread regret among his patients, colleagues, and friends. Born at Bradford in 1877, he came of a family who had practised medicine for several generations. He was educated at the Leeds Medical School and subsequently pursued postgraduate studies in Paris, obtaining the M.B., Ch.B.Vict. in 1900, the M.D.Leeds in 1905, and the D.P.H. in 1906. The appointments he had held were: house-surgeon to the General Infirmary at Leeds; resident physician to the Worcester Consumptive Sanatorium, Knightwick; and resident medical officer to the Consumptive Sanatorium, Gateforth. His publications included several articles on tuberculosis, and his membership of the British Medical Association extended over many years. From 1908 to 1931, except for service in the R.A.M.C. for which he volunteered during the last war, he resided in Wavertree, Liverpool, where he established a large practice. After several years in Hastings, he eventually returned to the North-West and lived at West Kirby. Though he had decided to retire, with the outbreak of war and consequent shortage of medical practitioners he energetically recommenced practice and also undertook valuable work in the examination of recruits. Dr. Parkinson represented the finest type of general practitioner, possessing marked ability and always keeping abreast of modern advances. Ever cheerful, it is impossible to speak too highly of his kindness and devotion to his patients. His passing is indeed a great loss.—H. H. S.

Dr. WALDEMAR BARTHOLIN SOMMERS died on May 9, at Redhill, Surrey, after a long and patiently borne illness. He was born in New Zealand, coming to Edinburgh to study medicine in 1902, where he graduated M.B., Ch.B. with 2nd class honours in 1908. After a year as house-physician to Prof. Greenfield he was appointed medical officer to the Burmah Oil Company, and he carried on his work at Syriam, the oil refinery. While on leave in 1914 he took the F.R.C.S.Ed. At the end of his contract in 1925 he retired to Redhill. J. C. L. writes: "I was a fellow student of Bart Sommers and then joined him in Burma. Since coming back I have kept in the closest touch with him and have seen the wonderful philosophy and fortitude with which he bore his very distressing illness for nearly five years. He started medicine rather later than the majority of students, and to those of us who were privileged to become his friends this fortitude would have been expected of him. He was always quiet and rather reserved and did not make friends easily, but to those with whom he did he was always helpful in advice, both professional and social, to those younger than himself. He was a very sound physician and very modest with it all, and he earned much gratitude and praise both from the officials and from the natives with whom he came in contact during his all-too-short professional life. He was never particularly robust, so did not carry on any activities after his retirement from Burma. He leaves a widow, to whom all who knew him will extend the deepest sympathy.

Dr. CLAUDE GOULDESBROUGH, who died at Calstock, Cornwall, on May 12, aged 63, had practised for many years as a radiologist in London. He was educated at Rugby and Christ Church, Oxford, and studied medicine at St. Thomas's Hospital, taking the M.A., B.M., B.Ch. degrees in 1909, and was then casualty officer at St. Thomas's and house-physician at Addenbrooke's Hospital, Cambridge. Soon afterwards he began to specialize in radiology, and by 1914 had gained considerable experience as assistant superintendent of the *x*-ray department at St. Thomas's and M.O. in charge of the same department at the Royal Chest Hospital. In August, 1914, he went to France with the R.A.M.C.(T.), and became senior consulting radiologist to the B.E.F. In 1915 he returned to this country as consulting radiologist to the Empire Hospital for Officers, and wrote on military radiography in English hospitals in France during the first nine months of the war for the *Journal of the R.A.M.C.* Other hospitals with which Dr. Gouldesbrough served as radiologist were the Royal Northern Hospital, the Royal Westminster Ophthalmic Hospital, the Bethlem Royal Hospital, and St. Mark's Hospital, City Road.

Dr. HELEN STANLEY FAIRLEY was born in the Pas-de-Calais in 1875. She was a daughter of Major Richard Ireland Stanley and cousin of Sir William De Courcy Wheeler, a former president of the Royal College of Surgeons of Ireland. She spent a great part of her childhood with the Wheeler family and began her medical career at the Edinburgh College for Women in 1892, being one of the pioneer women in the profession. During this period she showed exceptional ability and qualified L.R.C.P.,

L.R.C.S.Ed., L.R.F.P.S.Glas. with distinction. She then took an assistantship for six months in a large country practice at Halstead, Essex, and in November, 1898, was appointed medical registrar at the West End Hospital for Nervous Diseases. Her health was never good in London and so she took an assistantship with Dr. S. B. Fairley in Birmingham. She married him in 1903. He died in 1916, leaving her with two children, and the practice in Erdington in which she continued for over 40 years. She was a pioneer in welfare centre work, being the first woman appointed in Birmingham under a trial scheme started by the late Sir John Robertson, who was then medical officer of health to the city. This position she retained until reaching the retiring age. She was lecturer and medical officer to the Anstey Physical Training College for Women; and since the outbreak of war acted as a medical referee for the Ministry of Labour in connexion with female employment. She was one of the early supporters of the Suffragette movement. Her practice was an extensive one and she was much beloved by patients, to whom she was ever ready to give of her best. She leaves one son, Major James Fairley, R.A.M.C., and one daughter who practises dentistry.—H. N. L.

The Services

The *London Gazette* has announced the award of the D.S.O. to Capt. (Temp. Major) B. G. A. Lilwall, R.A.M.C., and the M.C. to Lieut. (Temp. Capt.) H. C. Banik, I.A.M.C., and Lieut. B. Ahmad, I.A.M.C., in recognition of gallant and distinguished services in Burma.

The *London Gazette* has announced the appointment as C.B.E. (Military Division) of Surg. Capt. J. A. Maxwell, C.V.O., O.B.E., R.N., for distinguished service as senior medical officer in H.M. Hospital Ship *Oxfordshire* in dangerous waters during operations in Sicily and off the Salerno Beaches, and as O.B.E. (Military Division) of Surg. Lieut.-Cmdr. W. J. Latham, R.N., for distinguished services in connexion with operations which led to successful landings in Sicily and at Salerno.

Temp. Surg. Lieut. J. I. Thomas, R.N.V.R., has been awarded the D.S.C. and Surg. Lieut.-Cmdr. B. M. Goldsworthy, R.N., has been mentioned in dispatches. These names appear in a list of awards published by the *London Gazette* for outstanding courage, resolution, leadership, skill, or devotion to duty in certain of H.M. ships in operations which led to successful landings on the Italian mainland and at Salerno.

CASUALTIES IN THE MEDICAL SERVICES

Wing Cmdr. R. M. OUTFIN, who has been killed on active service, was one of the youngest senior medical officers in the R.A.F., and for the last few months was with a Coastal Air Force group in Italy. He had been mentioned in dispatches for his work in North Africa, where he commanded an R.A.F. mobile field hospital. Wing Cmdr. Outfin met his death flying with urgently needed vaccine to a small R.A.F. unit in the Central Mediterranean. He was one of the first R.A.F. medical officers to land in Sicily, three days after the invasion, when, with a few members of his mobile field hospital, he established the first R.A.F. hospital on the island. He landed on the Salerno beaches within a few days of the initial landing.

Wounded.—War Subs. Capt. M. F. Ronayne and Temp. Major A. Stuart, R.A.M.C.; Major F. J. O'Dowd, I.M.S.

Prisoner of war.—War Subs. Capt. L. J. H. Burton, R.A.M.C.

Missing, presumed killed.—Temp. Surg. Lieut. G. N. Davison, R.N.V.R.

Killed in action.—Capt. R. G. H. Jones, R.A.M.C.

Died.—Temp. Lieut.-Col. J. A. Anderson and Major H. A. T. Wells, M.B.E., I.A.M.C.

The demand for trained psychiatric social workers now greatly exceeds the supply, and all the evidence indicates that in the near future this demand will increase. Not only are such workers needed to complete the team of the child guidance clinics, the number of which is steadily growing, but their services are coming to be regarded as indispensable in hospitals and clinics dealing with various nervous disorders. To meet the demand for qualified psychiatric social workers the University of Edinburgh has approved regulations for a Certificate in Psychiatric Social Work. To obtain this certificate students must complete a one-year course of study and pass the necessary examination. Particulars may be had from Miss Nora Milnes, B.Sc., director of studies, Department of Social Study and Training, University of Edinburgh. While the student will be attached to that department, much of the teaching will be done at the clinics of the Royal Infirmary and the special hospitals recognized by the University for teaching purposes.

Universities and Colleges

UNIVERSITY OF LONDON

Major-Gen. P. H. Mitchiner, M.S., F.R.C.S., surgeon to St. Thomas's Hospital, has been reappointed a member of Convocation on the Senate for the period 1944–8.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting held on May 18, with Prof. R. W. Johnstone, President, in the chair, the following, who had passed the requisite examinations, were admitted Fellows:

A. F. Anderson, D. M. Dunn, J. Garden, C. Grimshaw, H. I. J. Kellam, A. Standeven, C. L. Thomas.

The Henry Arthur Dalziel Ferns Bursary was, after a competitive examination in organic chemistry in its application to medicine, awarded to Mrs. Jean Duckman.

The Bathgate Memorial Prize was, after a competitive examination in materia medica and therapeutics, awarded to C. K. Brown.

Medical Notes in Parliament

Notification of Leprosy

Mr. WILLINK announced on May 17 that he would not make leprosy a notifiable disease. He said the question had been carefully considered. Leprosy was not in the same category as the diseases to which compulsory notification applied in this country, where conditions were such that it was most unlikely to spread. The disease was almost exclusively contracted abroad, and administrative arrangements were in force whereby any case of leprosy found by the Service medical authorities or through the Hospital Emergency Service was brought to his Department's notice. All practicable steps were taken to deal with it with due regard to the medical and social well-being of the unfortunate sufferer.

Certification under a National Health Service

Dr. RUSSELL THOMAS inquired on May 18 whether the Minister of Health had framed rules for certification of sickness by doctors under the proposed National Health Scheme, or whether he proposed to leave such certification to a doctor's free and unfettered professional opinion. Mr. WILLINK said he had not framed such rules. The form and method of medical certification was one of many questions which he hoped to discuss in due course with the profession's representatives. The purpose of certification was to give those entitled to insurance benefits the evidence which they needed.

Dr. RUSSELL THOMAS further asked for an assurance that under the proposed National Health Scheme no doctor would be called upon to divulge the illnesses of patients to a third party, except in a court of law, in accordance with the tradition of medical practice. Mr. WILLINK said there was no intention of departing, in this respect, from the familiar principles which had hitherto governed the doctor–patient relationship.

Tests for Vaccine Lymph

On May 18 Mr. WILLINK stated that experience had shown the tests for the purity of vaccine lymph which were prescribed in the Regulations of 1931 resulted in the rejection of considerable quantities of safe material. The new Regulations accordingly prescribed a revised schedule of conditions for vaccine lymph, including a less stringent test for the presence of bacteria. A secondary effect of the revision was to remove the requirement that the prescribed tests should be applied at the final stage of manufacture. Regulation 15, which required the application of tests for the presence of living bacteria, was in effect replaced by a provision in the schedule specifying the maximum number of living bacteria which might be present.

Rural Water Supplies

The second reading of the Rural Water Supplies and Sewerage Bill was moved on May 18 by Mr. WILLINK. He said the object of the Bill was to stimulate the making of plans in readiness for a sustained attack on the problem of the 30% of the inhabitants of rural England and Wales who were beyond the reach of adequate, wholesome supplies of water in pipes. The Bill proposed assistance to the extension of sewerage. It would guarantee that the Government would help rural authorities which, in planning extension of piped water and sewerage, would be faced with costs beyond what ratepayers and con-

sumers could reasonably bear. For England and Wales £15,000,000 and for Scotland £6,000,000 were proposed as grants-in-aid. A power to the Minister to compel amalgamation and bulk supply of water from one authority to another would be included in major legislation to be introduced later. The persons affected by this Bill numbered 2,000,000 out of 40,000,000, and the call on water reserves was not relatively heavy.

Mr. TOM JOHNSTON said the purpose was to provide in Scotland wholesome water in pipes to every rural locality where there were houses or schools and to take the pipes to where those houses or schools could be connected at reasonable cost.

The Bill was read a second time.

Milk Supplies: New Central Control

Mr. ROBERT HUDSON moved on May 19 the second reading of the Milk and Dairies Bill. He said that consumption of liquid milk had gone up from 866,000,000 gallons yearly before the war to 1,185,000,000 gallons yearly. Supplies were insufficient and the Ministry of Food assumed that existing priority consumption by school-children and nursing and expectant mothers would continue after the war as part of the permanent social services. The Ministry of Food thought an additional 350,000,000 gallons of fresh milk per annum would be required before rationing could be abolished. Mr. Hudson hoped this would be accomplished. The aim must be not only milk in greater quantities but milk in which the public and the medical profession would have complete faith. This Bill was a necessary step to achieve that aim. Every dairy herd would, in future, be inspected by a qualified "vet" at least once a year. There were not enough "vets," and the provision for the training of more was under consideration. Steps for the control of disease had been extended. Mastitis, abortion, sterility, and Johne's disease were being dealt with by a scheme which had help from his Department. There had been an increase in the number of calves vaccinated against contagious abortion. He hoped soon to introduce a voluntary scheme which would enable the "vet" to carry out vaccination of the calves while he was at the farm. The Attested Herds Scheme against tuberculosis was making rapid progress before the war, but had to be suspended. He proposed shortly to reopen admission to that scheme. This would apply to both farmers selling their milk and farmers rearing stock. He hoped thus to build up whole areas free from tuberculosis from which dairy herds could be replenished with cattle free from the disease. In addition, the Ministry was pressing on with a national milk testing and advisory service. Of supplies to large depots, over 92% was now regularly tested; of producer-wholesalers' milk over 88%; and of producer-retailers 22%. The result was that the keeping quality of the nation's milk had been improved in the last two years. The Bill proposed to transfer to the Ministry functions which the local authorities had not always carried out. These were the inspection of premises, of equipment, and of methods of milk production. The powers had been entrusted to local authorities in 1926, when there was no State veterinary service and when milk supplies were drawn from the surrounding country; now supplies came to great cities for the most part from distant regions. Local authorities in the great consuming areas had no control over the conditions of their milk supplies. To carry out the provisions of the Bill he would have to increase his veterinary staff and also to recruit non-veterinary staff, men and women, with the qualifications of sanitary inspectors, milk inspectors, and so forth. He and the Ministry of Health would be jointly responsible for making regulations. The local authority would continue to be responsible for keeping a check on the cleanliness and purity of milk sold in its area.

Mr. TURTON moved to defer legislation until a Royal Commission had been appointed and had reported. Mr. CHARLES WHITE complained that tuberculin-tested milk was ordered to be mixed with milk of an inferior quality. Sir WILLIAM WAYLAND said the sanitary inspector was the proper man to examine the condition of a cowhouse. The veterinary inspector would not do that. It was not his trade. MRS. TATE contended that inspection of churns would still be the duty of the local authority. Mr. HUDSON remarked that Mr. Willink and he would make regulations in order that the churns would be properly inspected, which they were not at present.

NO MENTION OF SAFEGUARDS

Sir GEORGE ELLISTON said conveyance of disease through milk went on year by year, and the almost unanimous view of the medical profession had long been that the only real protection for many years to come must be by heat treatment of milk supplies. That view had been adopted in Canada and the United States, yet the House of Commons discussed this Bill without mention of the available safeguards against diseases caused by milk. It would be 40 or 50 years before the dairy herds of this country could be regarded as safe. It was regrettable that the Minister of Health should abdicate his powers over milk supplies. Power to make regulations should be retained by the Ministry of Health so long as any designated milk was allowed to be sold unpasteurized. Accredited milk had often been found to contain a higher percentage of tuberculous infection than raw unaccredited milk. That was the experience of the L.C.C. over five or six years.

Miss HORSBRUGH said all Members were dissatisfied with the present standard of the farms and with the lack of cleanliness of milk off the farms. The Government asked for a joint effort from the local authorities and the Ministry. Local authorities would be responsible for the milk in transit and in the shops. Enough stress had not been put on the time after the milk left the farm.

The Bill was read a second time by 116 to 13.

Penicillin Production.—Mr. CHARLES PEAT said on May 18 that small quantities of penicillin in its crude filtrate form could be produced in any bacteriological laboratory. This penicillin could be used for treatment in certain classes of case under special medical supervision. Such laboratories would not be able to make any significant amounts of pure penicillin for general distribution.

Notes in Brief

The Minister of Health proposes to consult the Mental Hospitals Association before introducing legislation affecting the mental health services of the country.

Medical News

A meeting of the St. Marylebone Division of the B.M.A., to which all practitioners in the area have been invited, will be held at Manson House, 26, Portland Place, on Monday, June 5, at 5 p.m., to consider the Report of the Council on the White Paper.

A Chadwick lecture on "Vegetation and Human Well-being" will be given on Thursday, June 15, at 4 p.m., at the Chelsea Physic Garden, Swan Walk, S.W.3, by Dr. B. Barnes, head of the department of biology, Chelsea Polytechnic. Particulars may be had from the secretary of the Chadwick Trust, 204, Abbey House, Westminster, S.W.1.

The meeting of the Pathological Society of Great Britain and Ireland which was to be held on July 7 and 8 has been cancelled owing to restrictions on travel.

The annual general meeting of the Society for Relief of Widows and Orphans of Medical Men was held on May 10 with the President, Dr. R. A. Young, in the chair. The report for 1943 was presented and adopted. During the past year 56 widows had been granted relief, receiving a total sum of £4,550. The total membership of the Society was 286. The invested capital now amounts to £141,000. Membership is open to any registered medical man who, at the time of his election, is resident within a twenty-mile radius of Charing Cross; after his election he is at liberty to reside anywhere outside that radius. Relief is granted *only* to the necessitous widows or orphans of deceased members. At the present time widows over 65 years of age receive £75 per annum, those under 65 receive £60. Last year a Christmas present of £10 was made to each widow. The grants to orphans cease on their attaining the age of 16; there is, however, a special fund from which grants may be made to enable them to study for some professional or business career. Full particulars and application forms for membership may be obtained from the secretary at the offices of the Society, 11, Chandos Street, Cavendish Square, W.1. Members are asked to notify any recent change of address to the secretary.

The thirteenth annual report of the Family Planning Association is a brief document giving an outline of another year of work under war conditions. A week-end instructional school for doctors, arranged by the Sub-fertility Committee, was held last October at North Kensington Women's Welfare Centre and was attended by 40 doctors from all parts of the country. There are now 62 voluntary clinics in Great Britain, of which 55 are run by branches of the F.P.A. A list of these clinics can be had on application to the secretary, at the offices, 69, Eccleston Square, London, S.W.1.

Mr. George H. Law, proprietor of the *Scotsman*, has bequeathed £10,000 to Edinburgh University to be devoted within a year to found a chair or lectureship in orthopaedics. He made other bequests, including £3,000 to the Church of Scotland Deaconess Hospital, £2,000 to Edinburgh Royal Infirmary, and £2,000 to the Royal Edinburgh Hospital for Sick Children.

The Eugenics Society, of which Lord Horder is president and Dr. C. P. Blacker hon. secretary, has issued in pamphlet form a revised version of the aims and objects of the Society. Copies may be had from 69, Eccleston Square, London, S.W.1.

The courses in industrial medicine arranged for July by the Faculty of Medicine of Sheffield University have been postponed owing to the national emergency.

Sir Stanley Woodwark, C.M.G., C.B.E., M.D., F.R.C.P., was appointed President of the Royal Institute of Public Health and Hygiene at the annual general meeting held on May 25.

Prof. Alfred Rosselet, director of the department of radiology at the Lausanne cantonal hospital, has been elected rector of Lausanne University for the period 1944–6.

The College of Speech Therapists has issued a short printed memorandum on the necessity for making provision for speech therapy among school children. Speech therapy is a medical auxiliary service, and the names of qualified persons appear on the *National Register of Medical Auxiliaries*. The memorandum refers briefly to the effect, the nature, and the incidence of speech disabilities and the reasons for the present neglect of children suffering from them. Out of 315 education authorities in England and Wales, only 104 have appointed speech therapists, while in Scotland only 6 out of 35 have made such appointments. All local authorities responsible for the welfare of children and young people are urged to include in their plans for the future, arrangements for the proper care of those whose speech is defective. The College is prepared to give advice and assistance in this matter to those applying to the secretary, 86, Harley Street, London, W.1.

The following medical prisoners of war have just been repatriated: Lt.-Col. W. E. O. Buchanan, Capt. S. G. Cowper, Capt. W. Mackay Davidson, Capt. C. Donald, Capt. W. Dornan, Capt. J. P. X. Fox, Capt. A. G. Hewer, Col. D. P. Levack, Major F. J. O'Meara, Major A. S. Till.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* infectious diseases were generally more prevalent, the total for scarlet fever being 145 higher than last week, that for whooping-cough 116, and that for measles 97.

The incidence of scarlet fever rose most markedly in Lancashire and Yorks West Riding, where the total notifications were 52 and 40 respectively above those for last week. Yorks West Riding had 35, and Warwickshire 34, more cases of whooping-cough than they reported last week, but Lancashire had 35 fewer notifications. Kent and Glamorganshire, with the number of notifications respectively 78 and 45 higher, were mainly responsible for the rise in measles incidence. The notifications of diphtheria were 36 above the previous week's total, London's total going up by 20.

Last week's high total for dysentery notifications was exceeded by 21. The chief centres of infection were Lancashire 61 (Blackburn C.B. 38), Cumberland 29 (Penrith U.D. 26), London 21, Derbyshire 15, Essex 14, Warwickshire 12, Shropshire 11, Sussex 11, Middlesex 10, Hertfordshire 10.

In *Scotland* notifications of measles were 106 higher than last week, those of dysentery 37 fewer. In Glasgow the incidence of measles rose from 301 to 394. Edinburgh reported 21 cases of dysentery, and Glasgow 15.

In *Eire* the total notifications of measles dropped by 105. The total for paratyphoid includes 56 cases from Dublin C.B. which occurred in institutions from the week ending April 29 and which have only now been reported.

Quarterly Returns for Scotland

A preliminary statement for the first quarter of 1944 has been issued by the Registrar-General for Scotland. The birth rate was 18.6 per 1,000 and was 0.3 below the rate for the first quarter of 1943 but 0.6 above the average of the previous five March quarters. The infant mortality was 76 per 1,000 and 19 below the five-year average for this quarter; with the exception of 1943, when the rate was 75, this was the lowest infant mortality ever recorded in a first quarter. The maternal mortality was 2.8 per 1,000 live births, being 2.1 below the five-year average and the lowest rate ever recorded for any quarter. The general death rate was 14.4 per 1,000, the same as in the corresponding quarter of 1943 but 2.6 below the average. The death rate from tuberculosis was 88 per 100,000 from all forms, and 65 from the respiratory form. The rate for all forms was the same as the five-year average, but the rate for respiratory tuberculosis was 4 below the average.

Week Ending May 20

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,733, whooping-cough 2,619, diphtheria 598, measles 2,255, acute pneumonia 806, dysentery 276, paratyphoid 3, typhoid 5.

No. 19

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 13.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1944 (a)	(b)	(c)	(d)	(e)	1943 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	70	5	26	4	2	62	6	29	4	1
Deaths		1	—				1	2		
Diphtheria	584	45	161	70	33	602	31	149	78	19
Deaths	7	—	—		1	12	1	3	1	—
Dysentery	280	21	54	5	—	98	22	41	—	—
Deaths					—	—			—	—
Encephalitis lethargica, acute	4	—	—	—	—	4	—	1	1	—
Deaths		—					—			
Erysipelas			48	4	4			39	10	3
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				13					30	
Deaths	53	7	14		4	41	9	5	11	7
Measles	2,132	210	560	161	16	8,032	518	569	6	50
Deaths	4	2	—		—	11	1	2	—	—
Ophthalmia neonatorum	75	5	14	—	—	48	2	27	—	1
Deaths										
Paratyphoid fever	10	1	20 (B)	62 (B)	—	4	—	2	—	—
Deaths	—	—	—		—	1		—	—	—
Pneumonia, influenzal*	704	52	1	12	2	712	29	4	5	3
Deaths (from influenza)	14	—	1		1	22	3	6	—	—
Pneumonia, primary			199	18				191	32	
Deaths		35			9		24		11	7
Polio-encephalitis, acute	—	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	2	—	3	—	—	8	2	1	5	1
Deaths		—					—			
Puerperal fever		1	18			—	2	11		
Deaths										
Puerperal pyrexia†	150	16	18	2	1	169	10	14	—	1
Deaths		—								
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,791	133	199	20	64	1,748	157	262	38	34
Deaths	2	1	1		—	1	—	—	—	—
Smallpox	1	—	—		—	—	—	—	—	—
Deaths					—				—	—
Typhoid fever	8	—	1	5	4	4	1	2	10	2
Deaths	1	—	—		—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths					—				—	—
Whooping-cough	2,548	262	179	42	16	2,106	126	268	20	37
Deaths	14	2	1		1	11	2	1	2	—
Deaths (0–1 year)	354	44	66		21	341	45	53	34	22
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,290	615	553		134	4,502	698	628	222	132
Annual death rate (per 1,000 persons living)			12·7		‡			14·2	14·6	‡
Live births	7,886	883	1,028		303	6,638	774	952	450	344
Annual rate per 1,000 persons living			20·9		‡			19·4	29·6	‡
Stillbirths	208	20	35			239	21	37		
Rate per 1,000 total births (including stillborn)			33					37		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Ergotamine Tartrate for Subinvolution

Q.—*A woman aged 28 has had a slight blood-stained uterine discharge intermittently since the birth of her first child two years ago. There is also a slight degree of prolapse with low backache. I am treating her as a case of subinvolution with ergotamine tartrate, 1 mg. twice daily, in conjunction with glycerin tampons. Is the dose of the drug adequate? How long can it be given continuously without the risk of producing toxic symptoms? How long should the interval be between courses? I would be grateful for further information and advice on treatment. There is no menorrhagia. Periods last about 5 days—no gross irregularity.*

A.—The characteristic feature of chronic ergot poisoning is gangrene of the extremities. This is caused by a group of alkaloids of which ergotamine is a representative. Cases are recorded in which gangrene of the legs has occurred during the puerperium in patients who have been given ergotamine, but usually these women have also suffered from sepsis, and it is therefore difficult to judge the part played by the drug. Apart from childbirth, ergotamine is often freely used by sufferers from migraine, apparently without ill effects. In view of the known properties of the drug, it is, however, prudent to limit its continued use to doses of 1 mg. twice daily by mouth for periods of not more than one week at a time.

There is no convincing evidence that the continued administration of ergotamine, or any other ergot preparation, influences uterine involution. In any case, it can scarcely be supposed that such therapy would have effect two years after childbirth. Judging from the symptoms as stated, it is probable that this patient's trouble is caused by gynaecological disorder of another variety—possibly of the cervix uteri.

Potassium Tellurite Swabs for Diphtheria Diagnosis

Q.—*Are potassium tellurite swabs efficacious in deciding whether a tonsillar patch is diphtheritic or not?*

A.—Such swabs are not reliable. Many organisms other than those of true diphtheria—e.g., avirulent diphtheria, some diphtheroids, and other bacteria—reduce tellurite, producing a blackening, and so give false positives. "False negatives" are also met with in practice. The test can in no way take the place of the clinical and bacteriological methods in use. Reliance on the tellurite test would deprive one case in six of necessary immediate serum treatment, and would lead to unnecessary administration of serum to nearly 50% of non-diphtheritic cases. (See *B.M.J.*, 1939, **1**, 1273, 1291; 1939, **2**, 140; and *J. Amer. med. Ass.*, 1941, **117**, 1255.)

Prevalence of Bovine Tuberculosis

Q.—*What percentage of tuberculosis in this country is caused by the bovine bacillus? What percentage of the population in the U.K. is infected with bovine tuberculosis (a) in the population as a whole and (b) school age and under? What are the corresponding figures for Canada and U.S.A., where it is understood the compulsory pasteurization of milk has reduced the incidence by 75%?*

A.—It is impossible clinically to distinguish between tuberculosis due to human and tuberculosis due to the bovine type of bacillus. The typing of tuberculosis requires skill and time and is not performed as a routine; consequently official figures for the whole country are not available. A recent estimate from the bacteriological evidence of different workers shows that the bovine type is responsible for about 2% of all cases of pulmonary tuberculosis and for about 30% of all cases of non-pulmonary tuberculosis. The proportion varies with the variety of tuberculosis. The bovine form accounts for over three-quarters of the deaths from tuberculosis of the intestines and peritoneum. These values are based on necropsies, etc., and no useful estimation can be made of the amount of bovine infection either in the whole population or at school age and under. There are considerable geographical differences. Pulmonary tuberculosis of bovine origin is very low in the south of England, becomes commoner towards the north, and in the north-east of Scotland accounts for 10% of all cases of pulmonary tuberculosis. The extent of bovine infection in Canada and the U.S.A. is unknown. Investigations in various cities have shown that with efficient pasteurization the bovine form of tuberculosis tends to disappear. An example of these inquiries is to be found in Toronto, where compulsory notification has been in force since 1915; an investigation did not discover a single case of bovine infection, although 4% of the churn milk and 26% of the bulked milk entering the city contained tubercle bacilli.

Dry, Crusty Nares

Q.—*I have seen a number of patients recently in whom, usually after a cold, a dry, crusty condition of the anterior nares persists. What is the best way of dealing with this very minor but troublesome condition?*

A.—The soreness and dryness following a cold are best treated by rubbing in a little lanoline twice daily; or, if lanoline is unobtainable, by applying

Ung. hyd. ammon. dil. ʒj
Paraff. moll. ad ʒj.

Post-operative Morphine

Q.—*Where rapidity of action, nausea, or vomiting are not important factors, is hypodermic morphine administration generally justified? Where post-operatively morphine is given over 24 to 48 hours, is sublingual dosage four-hourly satisfactory? If given properly, was sublingual dosage satisfactory in the last war?*

A.—Provided the dosage is suitably increased, the effect of morphine given sublingually can be regarded as satisfactory. The questioner's provisos are, however, very frequently present, and especially is rapidity of action often very advisable. For general post-operative sedation over a period morphine is adequate when administered by mouth, and it was certainly thus used on occasions in the last war. However, the precision of control of dosage and certainly of action of hypodermic injection render this method advisable in ordinary practice.

Treatment of Migraine

Q.—*A married woman of 54 has suffered from migraine since the age of 14. She is getting some relief from drugs. She suffered from hay-fever some years ago, but this has cleared up. She states that her periods ceased 1½ years ago. She is not neurotic and her appetite is fairly good between attacks. She has lost weight during the past 2 years (1–2 stone). I would be glad of any suggestions as to treatment. Attacks (headache, nausea, weakness) are, if anything, increasing in severity and frequency.*

A.—There are three lines which might be just (but only just) worth following. (1) The patient has an allergic history. It is possible that some cases of migraine are allergic. The patient should therefore have skin tests performed for sensitivity to foreign proteins, and she should be desensitized against any found to be positive. (2) Reports have appeared from time to time of good effects from the injection of the gonadotrophin of pregnancy urine. The evidence that this treatment is useful is not good, but in a case like this no harm could come from giving it a trial. The suggested dose is 500 rat units twice a week, with a gradual reduction if and when success is achieved. (3) There is rather better evidence that a dehydrating treatment may be useful in some cases, especially when the patient complains of oliguria. The diet should be rich in protein and poor in fat and carbohydrate (a difficult thing to attain in wartime), free from salt, and low in fluids. Urea should be given in a dosage of 25 to 50 g. a day, and other diuretics may be employed. If the above three suggestions fail, it would be worth while seeing whether ergotamine tartrate works sublingually in this patient. If it does, injections can be discarded. This often means that the patient will use the treatment more frequently and earlier and therefore more effectively.

Treatment of Keloid Scar

Q.—*A boy vaccinated about two years ago has developed a keloid, which gave him some pain at first. But he has not complained for the last six months. Is there any risk in not having it treated?*

A.—Keloid (the purists spell it cheloid from the Greek chelē = claw) is a fibrous overgrowth in the subcutaneous tissue occurring at the site of an intentional or accidental injury to the skin. It is more likely to develop if healing has been accompanied by granulation tissue, as happens in burns or other infected lesions, and there is probably an individual predisposition to it. Histologically the tissue consists mostly of collagen fibrils with scanty fibroblasts, and there is no evidence that this hyperplastic reaction is a precursor of tumour formation. Thus it may be safely left alone. If, however, it is unsightly, or painful due to involvement of superficial nerves, or sufficiently raised to be irritated by clothing, treatment with deep *x* rays or mild gamma irradiation may be recommended as a reliable method of cure.

INCOME TAX

Expenses of Assistant

P. B. is an assistant and lives in a furnished house (rent £3 3s. per week), where he sometimes sees patients by appointment. Can he claim to deduct some part of the rent as an expense?

*** If it is an express or implied condition of his appointment that he shall have a residence at which patients can be seen, something can be claimed. Unless there is such a condition the claim is barred as the expense would not be regarded as "necessary." What would be a proper amount to claim—if a claim can be made—is difficult to say, because the facts seem to suggest that the £3 3s. would be paid whether patients were to be provided for or not. But even half a guinea a week would be worth something in terms of tax. It might be advisable to see the inspector of taxes, or one of his staff, and put the facts before him.

Repairs to House

F. F. has had the outside of his house painted at a cost of £90.

*** It is assumed that in the past F. F. has deducted as a professional expense a proportion of the net (and not the gross) annual value of his house—i.e., of the amount on which it is assessed for Income Tax, Schedule A. On that assumption F. F. should deduct the same proportion of the £90, or such other proportion as may seem reasonable.

"Pay as you Earn"

F. C. is paid monthly from two or three sources, as part-time M.O.H., and as District and Institution M.O.

*** Assuming that F. C. is not in general practice "pay as you earn" will apply and, assuming that he was assessed under Schedule E for 1943–4, he will have the cancellation of 7/12ths of the tax for that year. If he is in general practice and the fees have been assessed under Schedule D as part of the general profits of the practice, "pay as you earn" will not apply.

Partnership: Salaried Appointments

L. S. cites the case of three doctors in partnership in a mixed practice; one-tenth of the gross receipts comes from appointments held by individual partners. Hitherto the income from the appointments has been included with the general profits in one sum assessed under Schedule D.

*** We advise the continuance of this arrangement if the authorities will agree. There may be some difficulty about the War Office pay, but not as regards the M.O.H. appointment. If the income from an appointment is made under Schedule E, the salary, etc., must be treated as the income of the individual partner who holds the appointment—what he does with his earnings afterwards does not affect his personal liability. But, of course, an appropriate adjustment must be made in dividing the tax assessed under Schedule D between the partners.

Car Expenses of M.O.H.

G. M. is an assistant M.O.H. whose car allowance from the local authority has now been withdrawn. The car, however, is still used for public health work. What deduction can be claimed?

*** To furnish the basis for a deduction the expense must be incurred "wholly, exclusively, and necessarily in the performance of the duties of the office." Assuming that G. M. can establish the fact that the use of the car is "necessary"—and in view of the cessation of the mileage allowance that may be a little difficult—the amount to be deducted would be that proportion (presumably the whole in present circumstances) of the running costs and depreciation by wear and tear which is reasonably applicable to professional as compared with private use. If the car is regarded as *not* necessary, the amount to be claimed is what would have been the expense incurred in other forms of locomotion, in travelling while performing the duties of the office if the car had not been available.

Car Expenses: Schedule D and Schedule E Assessments

G. S. holds a salaried appointment the income from which is assessed under Schedule E. The whole of the car expenses are set against the gross receipts assessable under Schedule D. Is this correct?

*** No. Strictly the proportion reasonably allowable to the "appointment" work should be excluded in dealing with the Schedule D liability; and, if allowable, set against the salary in determining the tax due under Schedule E. (In so far as the expenses are incurred in travelling to the place of employment such expenses are not allowable under Schedule E.) Possibly the inspector of taxes does not regard the amount involved as worth troubling about, and in any case the liability under Schedule E for 1943–4 will be substantially reduced by the cancellation due under the "pay-as-you-earn" scheme.

Cash or Earnings Basis

"Y. Y." puts the following question: A was in practice alone for 17 years and then in partnership with B for 10 years. Throughout the profits were assessed on the cash basis. The partnership has now been dissolved and A is continuing in practice alone. The inspector of taxes holds that A is starting a new business and must in future pay tax on his bookings instead of on his takings. Is this correct?

*** It has to be remembered that the basis of gross bookings, *less an estimated deduction for bad and doubtful debts*, is the correct legal basis, and accordingly that the adoption of the cash receipts basis is concessional and will be agreed to by the Revenue only where the circumstances are such that the result will probably be substantially the same whichever basis is adopted. As we understand the practice in this matter, "Y. Y." would be allowed to continue on the cash basis provided he brings into the calculation the whole of the gross cash receipts of the practice whether due to his own or his late partner's work. Unless this is done the practice must be regarded as having been recommenced, and in such cases the Revenue normally require the adoption of the "bookings" basis. The result would be the same if the practice has been divided between A and B and not wholly taken over by A.

Salary for Part-time Work

A. receives a salary from a local authority under the Part-time Consultant Group Scheme. Does this fall within the P.A.Y.E. scheme?

*** If the nature of the contract of service is such as to establish the relation of master and servant, the contract is one of employment and the local authority is entitled to deduct tax in making the salary payments. To that extent the salary would fall within the P.A.Y.E. scheme. There are, however, other points to be considered. If the salary is assessed separately under Schedule E instead of being included in the general Schedule D assessment, there will probably be some restriction of allowable expenses and more tax will be payable. Further cancellation of part of the 1943–4 tax will presumably not apply, as that is barred by Section 7 of the 1944 Act if, as is the case, such salaries are ordinarily taken into account in computing the profits of the profession.

Tax Payable on Pension

D. J. asks what tax would be payable by a married man at present rates on a pension of (*a*) £400, and (*b*) £500.

*** (*a*) £81 2s. 6d., of which £28 3s. would rank for post-war credit. (*b*) £126 2s. 6d., of which £31 10s. would rank for post-war credit.

LETTERS, NOTES, ETC.

Vitamin B_1 as a Cardiac Tonic

Dr. J. DRUMMOND, F.R.C.P.Ed., writes from Durban: In the correspondence section of the *Journal* of Jan. 15 certain letters dealing with the value of the Moots–McKesson index raise the question of what is a good cardiac tonic. The answer to my mind is vitamin B_1. It has been my practice for some years now to administer this vitamin to all cardiac cases as an adjuvant to other accepted methods of treatment. Cases of fast fibrillation resistant to digitalis will as a rule come under control within twelve hours of intravenous injection of 60 mg. vitamin B, and continue to improve under its daily supplementary addition to digitalis. I have seen a case of pneumonia in critical failure, irresponsive to continuous oxygen, coramine, etc., revive and recover with intravenous injection of 120 mg. vitamin B. I have seen bundle-branch block disappear and complete heart-block resume normal rate and rhythm on long-continued courses of this vitamin. The dosage must be large. The coronary circulation is so constituted as to supply the needs of the hardest-worked muscle in the body. I seem to remember reading somewhere that in a given space of time it handles eleven times the volume of blood delivered to the rest of the body. Its circuit is a very short one. Therefore, agents to be delivered by it should be concentrated irrespective of subsequent loss elsewhere. The recent work of Wintrobe referred to in your columns would seem to indicate that one's clinical finding that B_1 was necessary to the maintenance of myocardial well-being is now supported by the histological records in fatal cases of experimental deprivation in animals. B_1 appears to be not antineuritic but cardiotonic in its action, in the sense that it keeps the myocardium intact, healthy, and active.

Training Men for Medical Work on U.S. Merchant Ships

Means for providing an adequately trained medical representative aboard every U.S. merchant cargo vessel by the end of 1944 are announced by the War Shipping Administration in Washington. Junior assistant purser-pharmacist's mates are receiving instruction at the U.S. Maritime Service Hospital Corps School and then being sent to sea. A five-week course in the functions of a purser is

followed by a month of practical training in a marine hospital. More than 1,200 have graduated from the school since the end of 1942, and U.S.A. officials estimate that one out of every four merchant ships now has a medical representative aboard. Dovetailing the work of a purser and pharmacist's mate was thought to be the most economical way of providing medical care for the American Merchant Marine. Duties as a purser are heavy when a ship is in port where spare medical facilities are available, but while at sea he has ample time to devote to medical care of men and ship sanitation. Each class entering the hospital school is made up of 40 pursers and ten apprentice seamen. Experienced pursers are not required to attend the purser's school, taking only the medical part of the combined programme. In the Hospital Corps School seamen receive instruction in elementary anatomy and physiology, nursing, and preventive medicine including the giving of inoculations, ship hygiene and sanitation, clinical laboratory work, pharmacy, and advanced first aid. This course is followed by a month in a marine or other approved hospital.

Why Tie the Cord?

Dr. E. W. PRICE writes from the Baptist Mission Hospital, Pimu, Belgian Congo: It is more or less assumed in one's medical upbringing in England that failure to tie a newborn baby's cord after section entails considerable risk of fatal or serious haemorrhage. It is therefore surprising to find that among at least one tribe in Africa —one, that is, with which I am familiar—there has never been any attempt to tie the cord in native midwifery. Their use of ligatures in other medical conditions suggests that if haemorrhage had occurred even a few times the medical tradition would have grown up to ligate the cord, as a preventive. In addition to this observation is the corresponding fact that in seven years' medical experience no case of umbilical haemorrhage has come to my notice. And only one case of umbilical infection. This latter observation is of outstanding significance. The knife used for cutting the cord is never sterile, the subsequent native medicine rubbed on the end of the cord must be far from sterile, and no further dressing or treatment is done. Is it, then, possible that the infection which we do see in England is predisposed to by the devitalization of the tissue distal to the ligature which we habitually place on the divided cord? Further, as the cord separates normally at the skin level and not at the level of the applied ligature, what further call is there to ligate it at all? In imitation of native practice, I have been simply dividing the cord with sterile scissors and putting on a sterile bandage. The results are excellent, and one avoids (a consideration in the conditions of native practice) the need for sterile suture, sterile forceps, and sterile water. It may be that in this one case it is the European who clings to the superstition and the native who knows the truth!

Scottish Medicinal Plants

Foxglove leaves, foxglove seeds, and rosehips are again required from the Scottish countryside for medicinal and dietetic purposes. Local arrangements for collecting and dispatching to the Scottish Medicinal Plants Scheme Collection Centre, Airdrie, are in the hands of joint committees of the Women's Voluntary Services and the Scottish Women's Rural Institutes. Details of the scheme are given in a bulletin issued by the Department of Health for Scotland, who advise collectors on how to gather the plants and preserve their valuable content. Foxglove leaves, for instance, are best gathered in late June or July, when the flower is easily recognizable. The essential factor here is that the leaves should be dried as quickly as possible after picking. Foxglove seeds require less attention. They should be gathered about the end of July or August, when half to two-thirds of the capsules on the stalk have begun to split open, and are easiiy stripped from the plant and later spread on paper in a warm room to dry. A pillow-slip with the mouth fixed open with a hoop makes a good bag for collecting. Scotland's chief contribution to the laboratory is her rosehip crop, and it is hoped that this season will produce even more than last year's bumper crop of 70 tons. The hips are used to make syrup for children and infants to replace the vitamin C normally obtained from oranges and other fruits, and unlimited supplies are wanted. The hips are richest in vitamin content from the time they begin to change c lour until they are fuily red—normally from September onwards.

Vomiting of Pregnancy

Dr. WALTER CALVERT writes: The experience of Dr. Edwards (April 8, p. 512) in vomiting of pregnancy contrasts with my own. I believe, and teach, that many of the physiological and minor pathological phenomena of pregnancy are due to the high blood level of progesterone. This hormone relaxes plain muscle. Thus relaxation of the uterus protects the early pregnancy. Relaxation of the gut gives rise to constipation. Relaxation of blood-vessel walls causes the typical low blood pressure of pregnancy, and the varices which are seen in various situations. Relaxation of the gastric plain muscle gives rise to vomiting. Accordingly I have given stilboestrol 1 mg. t.i.d. for 3 days in many cases of vomiting, including quite severe hyperemesis. The results support the theory and are uniformly good. Of course the good results of "treatment" of any kind in these cases are well known.

Multiple Infestation with Taenia saginata

Dr. G. W. S. ANDREWS and Dr. A. C. OGILVIE, medical officers at an E.M.S. hospital, write: The following case may be of interest for two reasons: (1) Four scolices were recovered after a single dose of filix mas; (2) the present treatment with a single large dose preceded by sodium bicarbonate succeeded, whereas four previous treatments with filix mas in divided doses had been unsuccessful. A domestic servant aged 38 first noticed pain in the epigastrium and distension of the abdomen in Oct., 1942. Two months later white segments were observed in the stools, and she was treated with quassia enemata on two occasions. A few months later she again underwent treatment, this time with filix mas in divided doses. This was repeated three times in seven months. On admission to hospital in May, 1944, she was still passing segments, and treatment with filix mas was again tried. She was given fluids only and magnesium sulphate ʒiv mane for two days. On the third day sodium bicarbonate ʒiij followed 35 minutes later by liquid extract of male fern ʒiss were administered, and finally magnesium sulphate ʒiv after a further half-hour. From the material passed half an hour later a large number of proglottides and four scolices were recovered, which were identified as *Taenia saginata*. The success of this treatment was considered to be partly due to the action of the large dose of sodium bicarbonate in dissolving the mucus which always surrounds the scolex of the tapeworm where it is attached to the mucosa. Our thanks are due to Dr. E. Idris Jones, physician in charge of the case, for advice and help in the preparation of this note.

Simulated Epilepsy after Convulsion Therapy

Dr. G. CAMPBELL YOUNG writes from Bracebridge Heath Hospital: Sir Humphry Rolleston once suggested to his class as subject for a thesis—"Diseases caused by Treatment"—a fruitful field indeed. The following is an addition to the already long list. In the absence of my medical superintendent I was asked to see a case at another hospital in the county, a man who was having at least a dozen fits daily and was displaying rather troublesome automatic actions thereafter. Every kind of depressant drug had been given in large doses but without diminishing the number of fits. The case had been referred to a neurological hospital with a view to surgical treatment but had been rejected as unsuitable on the ground that the convulsions were so general that cortical localization was not possible. When I entered the room I recognized a somewhat shadow-like ex-patient of mine to whom I had given a short course of convulsion therapy and who had improved sufficiently to be discharged thirteen months earlier. On his locker was a carefully padded spatula to prevent tongue-biting. He looked at me vacantly and asked me if I were the new medical officer. I requested to be left alone with the patient, and on this happening he immediately said, "You are Dr. Campbell Young," and recalled his stay at Bracebridge and the treatment he had been given. He then described the fits he was having and announced that he would shortly have one, which he obligingly did, with a very fair imitation of a spontaneous or perhaps, more accurately, induced fit. Certification was advised and he again came under care at Bracebridge. All sedatives were withheld. He never had another fit and he is now in the course of being discharged from the R.A.F. Admittedly, the boy was a hysterical type, and had once, in my presence under slight stress, indulged in a jaw-clenching, arm-throwing exhibition which, however, would have fooled no one. Even so, it would seem a fair assumption that, had not convulsion therapy been practised, no such orgy of epileptiform attacks would have occurred. Here was a youth aged 22 who had convulsed himself with such success as to convince observers and himself to the extent of risking the excision of part of his cerebral cortex to cure his self-inflicted "epilepsy." It is an interesting corroboration of the imitative faculty of the schizophrenic. The artificially induced convulsion has not apparently been exploited to aid those who coach the less enthusiastic conscripts in the art of failing to pass their medical examination. I am indebted to Dr. Macarthur for giving permission for this to be published.

Corrigenda

Dr. C. BOWDLER HENRY wishes to correct the last sentence of the paragraph numbered 4 in his letter on "Dental Hygienists" published last week (p. 733). The course referred to occupied half a year, not one year.

A translation into English by Dr. A. Fry of the report by a Committee of Soviet Scientists on "Gas Infection of the Brain as one Form of the Serious Complications of Cerebro-cranial Injuries" was published in the *Journal* of June 26, 1943 (p. 785). A message from Moscow asks us to state that owing to an oversight the name of the author of this report was not given; his name is N. I. Grashchenkov.